

CORNELL UNIVERSITY OFFICIAL PUBLICATION

VOL. 30

No. 14



*Announcement
of the*
SUMMER
SESSION
1939

UNIVERSITY
AND STATE
SUMMER
SCHOOLS

PUBLISHED BY THE UNIVERSITY

ITHACA, NEW YORK

MARCH 1, 1939



Goldwin Smith Hall is the main building of the College of Arts and Sciences. It is named in honor of Goldwin Smith (1823-1910), who resigned a fellowship of University College, Oxford, and accepted the chair of English History at Cornell University in 1868.

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CALENDAR

July 3, Monday	Registration, 8 a.m.—5 p.m., <i>Drill Hall</i> . Fees are due for payment at the Treasurer's office, <i>Morrill Hall</i> .
July 4, Tuesday	University holiday.
July 5, Wednesday	Instruction begins at time and place announced for each course. Registration is continued at the Registrar's office, <i>Morrill Hall</i> .
July 7, Friday	Last day for payment of fees at the Treasurer's office, which closes at 4 p.m., <i>Morrill Hall</i> .
July 8, Saturday	Instruction continues on this Saturday.
Aug. 11, Friday	Final examinations begin.
Aug. 12, Saturday	Summer Session ends, 4 p.m.

SPECIAL EVENTS

June 19, Monday	Summer Field Course in Geology begins, <i>Spruce Creek, Pennsylvania</i> .
June 26, Monday	First unit course in Hotel Administration begins, 9 a.m., <i>Martha Van Rensselaer Hall</i> .

THE SUMMER SESSION OFFICE

The Summer Session office is located during July and August in Room 245 Goldwin Smith Hall. The office will be open from 8:00 A.M. to 4:00 P.M., daily except Saturday; on Saturday the office will close at 12:00 M.

During the rest of the year the Summer Session office is located in Room 249 Plant Science Building.

CORNELL UNIVERSITY OFFICIAL PUBLICATION
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GENERAL INFORMATION

The SUMMER SESSION carries on the work of the several Schools and Colleges of the University during the summer vacation period. By doing this it provides the opportunity for almost uninterrupted work throughout the year to graduate and undergraduate students regularly enrolled in the University, and at the same time places the facilities of the University at the disposal of many persons who would otherwise be unable to use them. Instruction in the Summer Session is accordingly arranged to meet the particular needs of several groups of students: graduate and undergraduate students enrolled in the regular year who wish to continue their work during the summer; teachers, principals, and superintendents in public and private schools who wish to continue their professional training; professors and instructors in colleges, and teachers in schools who wish to carry on specialized work in their particular fields; students planning to enter the University who wish to complete entrance requirements, or obtain advanced credit at entrance; and other persons who may wish to take advantage of the summer months to further their education.

ADMISSION TO THE SUMMER SESSION

Except as stated in the next paragraph, the Summer Session is open to all persons qualified to do the work of any of the courses offered. Each person must be able to satisfy the instructor in each course he plans to take that he is qualified to do the work of that course. No examinations or applications on special forms are required for admission to the Summer Session.

Admission of undergraduates. The following special requirements for admission are made in the case of students registered as undergraduates in Cornell University or in other institutions. Any undergraduate student in Cornell University who has been dropped or is on probation may be admitted only on the recommendation of the authorities of his college. An undergraduate student registered in an institution other than Cornell University must submit a certificate of good standing, signed by the dean or other authority of his college, before admission is granted. Certificate forms may be had upon application to the Director of the Summer Session. Students whose names have been removed from the rolls, and students on probation, are regarded as not in good standing and cannot be admitted.

Admission to the Graduate School. For admission to the Graduate School, two requirements are made: (1) the applicant must have received a baccalaureate degree from a college or university of recognized standing, or must have done work equivalent to that required for such a degree; (2) as judged by his scholastic record, or otherwise, the applicant must show promise of ability to pursue advanced study and research.

A student who wishes to enter the Graduate School should file application for admission, together with all the required supporting credentials, in the Office of the Dean of the Graduate School by June 15. Application must be made on the formal blanks obtainable from the office of the Graduate School, and must be accompanied by complete and official transcripts of the student's previous training.

A student whose application and credentials are received after June 15 will not be able to register in the Graduate School on registration day, July 3. He should register with the University Registrar on that day and, after consulting members of the Faculty in his proposed fields of graduate study, begin at once his program of work. He will register in the Graduate School (office in Morrill Hall) immediately after receiving notice of favorable action on his application.

An application for admission to the Graduate School for the 1939 Summer Session can not be considered if filed after July 6.

Students planning to apply for admission to the Graduate School should read the section on the Graduate School beginning on page 9. Further information is given in the Announcement of the Graduate School, which will be sent by the Secretary of the University upon request.

REGISTRATION

Registration for the Session of 1939 will take place on Monday, July 3, in the Drill Hall; the hours for registration will be from 8 a.m. to 12:30 p.m. and from 1:30 p.m. to 5 p.m. Students are urged to register on this day. Advance registration, either in person or by mail, cannot be arranged.

Registration with the University Registrar is required for admission to any of the exercises of the Summer Session. In addition, students who wish to obtain credit for graduate work done during the Summer Session must also register with the Dean of the Graduate School. All women students must also register with the Dean of Women. Registration of automobiles to be driven in and about Ithaca by Summer Session students is also required.

Schedules. Except by permission of the Director, all students are required to register for courses amounting to four credit hours as a minimum schedule. The normal schedule is six credit hours and students are advised against registering for more.

Registration for attendance. Under certain circumstances teachers and other mature students, not candidates for degrees, may receive permission to register for some or all of their courses for attendance only. Students so registered are required to attend regularly and to perform the class work of the courses, but they will not be permitted to take the final examinations. They will receive no credit for these courses but may secure certificates of attendance at courses so registered for.

Auditors. Admission to classrooms during the Summer Session is restricted to students registered for the session. A student thus duly registered may occasionally visit any class; but if he wishes to attend regularly at classes for which he is not registered, he must secure an auditor's permit at the Summer Session office. Such permits will be granted whenever the student can show a serious purpose in such attendance. Auditors are not required to take part in the work of the courses which they visit, and certificates of attendance cannot be issued to them.

Personal direction. Students planning to take work in the Graduate School under personal direction, but not to attend classes, are required to register with the Registrar and the Dean of the Graduate School.

Late registration. Students reaching Ithaca on July 4 or later will register at the following times and places: all students, with the Registrar, at his office in *Morrill Hall, between 9 a.m. and 4 p.m.*; graduate students, also with the Dean of the Graduate School at his office in *Morrill Hall, at the same hours*; all women students, also with the Dean of Women, at *1 Sage Avenue, between 9 a.m. and 4 p.m.*; owners and drivers of automobiles, also with the Committee on Traffic Control, in *Stimson Hall, between 8:30 a.m. and 4:30 p.m.* Graduate students who expect to receive residence credit toward an advanced degree for Summer Session work must register with the Dean of the Graduate School within three days of the opening of the session. The latest date for such registration in 1939 is July 6.

Changes of registration. All changes of registration after Monday, July 3, must be made in the Summer Session office, 245 Goldwin Smith Hall. Except by permission of the Director, no changes of registration may be made after Friday, July 7.

WITHDRAWAL FROM THE SUMMER SESSION

A student may arrange for withdrawal at any time by cancelling his registration at the Summer Session office, 245 Goldwin Smith Hall. In such cases, the Treasurer may refund a part of the tuition fee or cancel a part of the obligation that the student has incurred for tuition, provided the reason for the withdrawal is stated in writing and is satisfactory to the Comptroller and the Registrar. In such a case the student is required to pay twenty per cent of the term's tuition for each week or fraction of a week between the first registration day and the date of his certificate of withdrawal, **unless the withdrawal is made before noon on Thursday, July 6.**

CERTIFICATES FOR WORK DONE

Students in the Summer Session may receive certificates of attendance and of work performed, with grades. Application for them should be made before August 7, and the applicant must leave at the office of the Registrar a large-sized envelope stamped and directed to his home address. The certificate will then be forwarded by mail.

ACADEMIC CREDIT

All courses offered in the Summer Session, excepting some of the unit courses of one or two weeks in length, are accepted for credit in one or more of the Schools and Colleges of the University, when taken by matriculated students in those Schools and Colleges. No student may receive credit for more than eight semester hours for work done in a single Summer Session.

College of Arts and Sciences. To obtain credit towards the Cornell A.B. for work done in a Cornell Summer Session, a student must previously have filed with the University Director of Admissions credentials covering the entrance requirements of the College of Arts and Sciences. He should then, in advance of Summer Session registration, secure the Dean's approval of his selection of courses. For work completed in a single Summer Session credit of not less than four nor more than eight hours will be allowed, but a total of not more than thirty hours of credit may be allowed towards the degree for all Summer Session work whether done at Cornell or elsewhere. The academic requirements for the degree of Bachelor of Arts are explained in detail in the Announcement of the College of Arts and Sciences.

The Summer Session records of students registered in the College of Arts and Sciences are reviewed by the usual standing committees of the College, and poor records in the Summer Session are liable to the same penalties as in the regular University session.

College of Engineering. Students in the College of Engineering who desire to offer work done in the Summer Session toward requirements for graduation should consult the Director of the School in which they are regularly registered before registering in the Summer Session. Students not yet matriculated in the College of Engineering, but planning to enter it, may obtain information about its requirements by applying to the Secretary of the College of Engineering.

College of Architecture. Students in the College of Architecture who desire to offer work done in the Summer Session toward requirements for graduation should consult the Dean of the College of Architecture before registering in the Summer Session.

State Colleges of Agriculture and Home Economics. Students in the State Colleges of Agriculture and Home Economics must consult with an adviser and secure his approval to the proposed schedule of courses if credit in those Colleges is to be secured. Advisers will be in the Drill Hall on registration day, July 3, and may be consulted at their offices on July 5 or later.

Department of Hotel Administration. Students in the Department of Hotel Administration who desire to offer work done in the Summer Session towards requirements for graduation should consult Professor Meek of that department before registering in the Summer Session.

Institutions other than Cornell University. The foregoing regulations apply to undergraduate students matriculated at Cornell University. Undergraduates enrolled in other institutions and wishing to have credits earned in the Summer Session applied on their work at such other institutions should, before coming to Ithaca, consult their own college authorities and make all arrangements by them deemed necessary. The Cornell Summer Session can assume no responsibility for the use to be made of credits earned by students thus coming from other places of study. The certificates mentioned above will show what courses have been taken, the amount of credit in terms of Cornell "hours," and the grades.

THE GRADUATE SCHOOL

Admission to candidacy for a degree. A student planning to apply for admission to the Graduate School should write at once to the Dean of the Graduate School for a copy of the Announcement of that School and for the blanks required for applications for admission. The Announcement gives full information about the advanced degrees granted by Cornell University, including the language requirements for admission and for some of the advanced degrees; residence and course requirements; and other information not given in the following sections.

Applications for admission to the Graduate School should be filed not later than June 15. After admission to candidacy for a degree, the student may write in advance of the opening of the Summer Session to professors whose courses he plans to take. In this way it is possible to secure advice with regard to major and minor subjects, or fields of concentration, and information about course requirements in specific fields, and to avoid delay and interruption of work at the opening of the Session.

Requirements for the Master's degree. The requirements for the degrees Master of Arts, Master of Science, and Master of Science in Agriculture consist of three parts: (1) a minimum period of residence; (2) completion of such courses and other work (including a thesis under Plan A) as may be specified by a special committee selected by the student to direct his work; (3) competence in scholarship, tested by a final examination.

Residence requirements. The minimum residence requirement for the Master's degrees mentioned above is two semesters of residence at Cornell University. This minimum requirement may be satisfied by five Summer Sessions of six weeks, or one semester and three Summer Sessions of six weeks, at Cornell University. Candidates for these degrees who are in residence during Summer Sessions are also expected to continue their studies during the year under the direction of the chairman of the special committee in charge of their work.

Subject matter requirements. Each student, upon admission to candidacy for a Master's degree, selects one of two plans of work.

Plan A. The candidate selecting this plan chooses a major subject of rather limited scope (e.g., French Literature, American History, Botany, Physical Chemistry) to which he plans to devote the greater part of his time. He also selects a minor subject properly related to the major subject. He then selects from the faculty of the Graduate School a member to represent each of his subjects; these constitute his special committee and the representative of the major subject acts as chairman. The candidate then files with the Dean of the Graduate School a statement of his major and minor subjects approved by the members of his special committee. This statement must be filed within two weeks after admission to candidacy for a degree. The candidate then and from time to time thereafter confers with the members of his special committee, and with their help outlines a program of work which meets the requirements for the degree he expects to earn. These requirements will include achievement in independent investigation supported by a thesis acceptable to the student's special committee.

It is to be noted that these requirements do not consist primarily of a prescribed number of courses, but of actual achievement in scholarship and research. Consequently only advanced work in each subject or field will be acceptable to the special committee. It may occasionally be desirable for a graduate student to take a course of an elementary character, and this is permitted with the approval of his special committee; but such courses are not considered to be part of the graduate program.

Plan B. The candidate selecting this plan chooses a field of concentration of broader scope (e.g., Biological Sciences, Social Studies, English, Foreign Languages, Home Economics), to which he plans to devote at least half of his time. He also selects a group of subjects within which he plans to distribute the remainder of his work. He then selects from the faculty of the Graduate School a member to represent the field of concentration and another to represent the field of distribution; these constitute his special committee. The representative of the field of concentration acts as chairman of the special committee. The candidate then files with the Dean of the Graduate School a statement of his fields of concentration and distribution approved by the members of his special committee. This statement must be filed within two weeks after admission to candidacy for a degree. The candidate then and from time to time thereafter confers with his special committee, and with their help outlines a program of work which meets the requirements for the degree he expects to earn.

The subject matter requirements under this plan include the satisfactory completion of approved studies carrying a minimum of thirty semester hours of credit, of which approximately one half will be in the field of concentration and the rest will be variously distributed with the sanction of his special committee. Work acceptable within the field of concentration must be devoted in substantial

part to studies requiring original investigation, organization and criticism on the part of the student. The candidate is not required to present a formal thesis: but if he does not do so, he is required to complete an expository or critical essay, or a problem in research, to the satisfaction of his special committee.

Examinations. In addition to course examinations, candidates are required to pass a final examination comprehending the thesis and the major and minor subjects (Plan A) or the field of concentration and distributed studies (Plan B).

Requirements for the Doctor's degree. The requirements for the Doctor's degree include a reading knowledge of French and German, tested by a special examination. A major subject and two minor subjects are chosen, and a thesis is always required. The residence requirement for the Doctor's degree may, upon recommendation of the student's special committee, be fulfilled in part by attendance during the Summer Session. For this purpose, three Summer Sessions will be regarded as the equivalent of one semester, and five Summer Sessions as the equivalent of one year. However, no more than two semesters of residence credit toward the Doctor's degree may be earned by Summer Session work at Cornell or elsewhere. The last year of required residence must ordinarily be spent in study during the regular sessions at Cornell University.

Candidates for the Doctor's degree should in all cases consult the Announcement of the Graduate School for a more complete statement of the requirements.

Registration for residence credit. To obtain residence credit in the Graduate School for Summer Session work the student must register both in the Summer Session and in the Graduate School; and such registration should be completed not later than the third day of the Session — in the Session of 1939, not later than July 6.

Candidates in the Graduate School of Education. The Graduate School of Education in its administration of graduate work functions as a division of the Graduate School of the University with the same requirements for admission save as to foreign languages. Two professional degrees are offered. (1) The Master of Education (M.Ed.) degree is intended primarily for those who complete, through a newly-established five-year program, the pre-service requirements for admission to teaching. (2) The Master of Science in Education (M.S.in Ed.) degree is intended primarily for those who are already certificated to teach but who wish to prepare themselves for some specialized form of educational service, such as administration, supervision, or guidance. This degree is conducted in the way described above for other Master's degrees except that the special committee must include three members. In general, the program does not demand the extensive research required of a candidate under Plan A of the regular Master's degree and permits a broader selection of courses. For further information regarding the requirements for these degrees, address the Director of the

Graduate School of Education, Stone Hall, Cornell University, Ithaca, N. Y.

Work under personal direction in the Graduate School. A candidate for the Doctor's degree who has completed a year of acceptable work in the Graduate School of Cornell University or in another graduate school, may with the approval of his special committee carry on work during the summer under the personal direction of the Faculty of the Graduate School. If residence credit is to be earned, the appropriate tuition and the administration fee must be paid. If no residence or other credit is to be earned, an administration fee of \$6.25 is charged. The privilege of taking work under personal direction during the summer without the payment of tuition is restricted to candidates for a degree in Cornell University, who have been in residence during the preceding year.

Non-candidates. A student admitted to the Graduate School as a non-candidate selects one or more advisers to direct his work. He then files with the Dean of the Graduate School not later than two weeks after registration in each term a statement of the studies he plans to pursue, with the approval of his advisers and of the members of the Graduate Faculty under whom the work is done.

Resident doctors. Persons who hold a Doctor's degree or have equivalent standing may, subject to permission from the Dean of the Graduate School, register as resident doctors to carry on advanced work in their special fields of study. Upon recommendation of the Dean of the Graduate School resident doctors are exempt from the payment of tuition and all other fees except laboratory fees. Resident doctors are admitted to advanced courses related to their fields of work, but may not attend other courses without the payment of tuition.

FEES

All fees are due and payable at the Treasurer's office in Morrill Hall on registration day, July 3. The last day for payment of fees without penalty is Friday, July 7.

Tuition fees. The tuition fee for the Summer Session is \$55. Students who were registered as candidates for a degree in the Graduate School prior to April 1, 1935, may pay fees at the rate in effect on that date. To secure this privilege they must make application in writing to the Dean of the Graduate School. This is the only exception to the uniform tuition fee of \$55.

Students taking unit courses for less than six weeks will pay tuition at the rate of \$11 a week. If unit courses extending through six weeks are taken, the tuition fee will be \$55.

Tuition fee for work under personal direction. Graduate students registered under personal direction during the summer who desire residence credit for their work must pay tuition for the credit desired pro rata at the rate of \$75 a term. In order to be admitted to

Summer Session classes, a graduate student registered under personal direction must pay a minimum tuition fee of \$55 unless he was registered as a candidate for a degree prior to April 1, 1935. If registered in the Graduate School prior to that date, he may be admitted to Summer Session classes upon payment of fees at the rate in effect on that date. To secure this privilege he must make application in writing to the Dean of the Graduate School.

Administration fee. This fee of \$6.25 is paid by two groups of graduate students in the Summer Session and by no others. These are: (1) students registered as candidates for a degree in the Graduate School prior to April 1, 1935, who apply for and are granted the privilege of paying fees at the rate in effect on that date; (2) graduate students registered under personal direction in the summer, either for credit or without credit.

Matriculation fee. A matriculation fee of \$10 and an examination book fee of \$1 are charged if the student is registering for the first time in the Graduate School of Cornell University, unless the student, as an undergraduate in Cornell University, has already paid these fees. A student registering in the Summer Session but not in the Graduate School does not pay these fees unless he is at the same time registering for the first time as a candidate for a degree from one of the other Schools or Colleges of the University. For further information about these fees, the General Information Number, which may be obtained from the Secretary of the University upon request, should be consulted.

Other fees and deposits. A fee of \$1 is charged to those students who receive from the Committee on Traffic Control the privilege of parking motor vehicles on the campus.

A deposit of \$5, refundable when all books have been returned, is required for the withdrawal of books from the University library.

For private instruction in organ, piano, or violin, a special fee of \$2 a lesson of thirty minutes is charged. For individual instruction in tennis or swimming, a special fee of \$10 is charged.

Laboratory, shop, field-trip, and incidental fees are charged for materials used and for other expenses in certain courses. The amounts of these fees are specified in the descriptions of the courses in which they are charged.

Deposits refundable upon return of apparatus, etc., are required in certain courses. The amounts of these deposits are specified in the descriptions of the courses in which they are charged.

Fees are charged for the use of pianos in the Music building and the organ in Sage Chapel for practice. For the amounts of these fees, see under the description of courses in music.

A fee of 10 cents per period is charged for the use of the University tennis courts and of the University swimming pool in Beebe Lake, adjacent to the campus.

Other regulations concerning fees. If a student withdraws from the Summer Session, the Treasurer may refund a part of the tuition

fee or cancel a part of the obligation that the student has incurred for tuition, provided the reason for the withdrawal be stated in writing and be satisfactory to the Comptroller and the Registrar. In such a case the student is required to pay twenty per cent of the term's tuition for each week or fraction of a week between the first registration day and the date of his certificate of withdrawal **unless the withdrawal is made before noon on Thursday, July 6.**

Students registering at any time during the last five weeks of the Summer Session are required to pay for the remainder of the term at the rate of twenty per cent of the term's tuition for each week or fraction of a week between the date of registration and the last examination day of the term.

Any student, graduate or undergraduate, except as hereinafter provided, who fails to pay his tuition, fees, and other indebtedness, or if entitled to free tuition fails to claim the same at the Treasurer's office and pay his fees, within the time prescribed by the University is thereby dropped from the University. When in his judgment the circumstances in a particular case so warrant, the Treasurer may allow an extension of time to complete payments. For such extension, the student will be assessed a fee of two dollars. A reinstatement fee of five dollars will be assessed in the case of any student who is permitted to continue or return to classes after being dropped from the University for default in payments. For reasons satisfactory to the Comptroller and the Registrar, which must be presented in writing, the above assessment may be waived in any individual case.

Any tuition fee or other fee may be changed by the Trustees to take effect at any time without previous notice.

SPECIAL REGULATIONS

Conduct and scholarship. The Summer Session is conducted under the general regulations governing conduct and scholarship which apply to all sessions of the University. Students are requested to familiarize themselves with dormitory and other rules and to abide by them.

The University rules governing student conduct are:

"A student is expected to show both within and without the University unfailing respect for order, morality, personal honor, and the rights of others. The authority to administer this rule and to impose penalties for its violation is vested in the University Committee on Student Conduct. The rule is construed as applicable at all times, in all places, to all students of the University."

"A student may at any time be removed from the University if, in the opinion of the Committee on Student Conduct, his presence is not conducive to the University's best interests."

The officers of the University also reserve the right to cancel the registration of any student at any time for neglect of scholastic duties.

Automobile registration and parking. Because of local traffic and parking conditions it is necessary to require registration of both motor vehicles and their drivers during the Summer Session, as well as during the academic year. Each student who maintains or operates a motor vehicle in or about Ithaca during the Summer Session must register with the Committee on Traffic Control at the time of registration for courses. He will at the same time register the motor vehicle which he proposes to drive.

Because of limited parking facilities, it is necessary to restrict the privilege of parking motor vehicles on the campus to those students who apply for and receive special permits. These permits are issued by the Committee on Traffic Control to those students whose need for them is greatest, and application for them should be made at the time of registration. The fee for a parking permit is \$1.

Cashing of checks. The Treasurer of the University accepts checks in settlement of charges payable at his office, but a rule of the Board of Trustees forbids him to cash any credit instrument, even to the extent of accepting a check or draft in amount greater than the sum due and returning the excess in cash. Students are therefore advised to open an account in an Ithaca bank as soon as they arrive in town, or else provide themselves with travelers' checks, drafts on New York City banks, money orders, or other form of credit instrument such as a bank will cash in the ordinary course of business.

RESIDENTIAL HALLS, ROOMS, AND BOARD

For women. The University has two groups of residential halls for women in which board and room can be obtained during the Summer Session by registered students only. They are:

Sage College, which accommodates 175 persons. Here the charge for room and a specified amount of laundry, for the session, is from \$24 to \$39, according to the size and location of the room. The dining room will not be open. Board may be obtained at Willard Straight Hall, across the green from Sage College, or at the cafeteria in Martha Van Rensselaer Hall.

Balch Hall, which accommodates 318 persons. Here the charge for room, board, and a specified amount of laundry, for the session, is from \$80 to \$95, according to the size and location of the room.

All women students who are twenty-one years of age and under are required to live in the University dormitories or sorority houses. This regulation applies to any students who are undergraduates at Cornell University or other colleges. Graduate women students may also secure rooms in the same residences or in other houses approved by the Dean of Women. The list of approved houses will be available after June 1 on application to the *Manager of Residential Halls*.

In the residential halls for women the charge for room and board includes dinner and lodging Saturday night, July 1 (not earlier), and all meals to and including breakfast Sunday, August 13.

Members of the Summer Session who lodge outside Balch Hall may obtain table board at that hall for \$9 a week, or \$48 for the six weeks of the session.

The Head Residents in charge of the halls are glad to know the students, to advise them in illness or other emergency, and to give them whatever information they wish about the University or the town. It is understood that persons living in the halls will conform to the house regulations made for the convenience and comfort of all.

Rooms for men. Men regularly enrolled in the Summer Session can obtain comfortable rooms in the *Residential Halls for Men*, which are thoroughly modern and of fireproof construction.

In the *Residential Halls* the charge for furnished room, including care of the room and laundry of bed linen, is from \$18 to \$30 for the session. There are a few suites at a higher rate, and a few rooms on the top floor may be had for less.

A list of private houses offering desirable rooms for men for the session can be obtained after June 1 by application to the *Manager of Residential Halls, Morrill Hall, Ithaca, N. Y.*

Applications for rooms. Applications for rooms in any of the residential halls, either for women or for men, and for rooms in the approved houses for women, should be made to the *Manager of Residential Halls, Morrill Hall, Ithaca, N. Y.*

Floor plans of the residential halls and other information about the rooms may be obtained, before making applications, by addressing the Manager. The same office will also furnish, after June 1, lists of rooms for women in private houses, similar lists of rooms for men, and information about private houses and apartments for rent.

Deposits with applications. A deposit of five dollars must accompany each application for a room in any of the residential halls; otherwise the application will not be entertained. The rooms are reserved in the order of application. If a room assigned is occupied by the applicant, the amount of the deposit is held until the end of the session to cover the return of keys and any damage to building or furniture other than ordinary wear and tear, and to insure the completion of the lease. The deposit will be refunded if the applicant gives formal notice to the Manager on or before June 15 that the applicant wishes to withdraw the application.

Checks should be drawn to the order of Cornell University.

Board, dining rooms, cafeterias. Women who are members of the Summer Session and who reside outside Balch Hall may obtain table board at that hall for \$9 per week or \$48 for the six weeks of the session. The dining rooms and cafeteria of Willard Straight Hall and the cafeteria in Martha Van Rensselaer Hall are open to both men and women students. Board may be obtained at these places and at cafeterias, dining rooms and restaurants near the campus at \$1.00 to \$1.25 per day.

Cost of living. An estimate of the cost of living in Ithaca in the summer can be made by consulting the figures given above. In a

private house rentals vary according to the location. Rooms are rented with the understanding that they will be occupied for the entire session unless both parties agree otherwise. Table board is generally engaged by the week.

Means of self-support. Men who wish to earn part of their expenses during the Summer Session are invited to correspond in advance with the Director of the Employment Agency of the Cornell United Religious Work, *Mrs. L. A. Fuertes, Barnes Hall, Ithaca, N. Y.* Opportunities of this kind for women students are limited, but information about such opportunities may be obtained by addressing *Miss R. L. Fitch, Dean of Women, Cornell University, Ithaca, N. Y.*

STUDENT HEALTH SERVICE

A health service is provided for students of the Summer Session as well as for those of the regular academic year. Students may consult the physicians of this service in regard to all matters that concern their health.

Those indisposed but still able to attend classes should consult the medical advisers immediately in order that advice may be given and that diagnosis of incipient diseases may be made promptly. For the protection of the University community, it is required that contagious and infectious diseases shall be reported immediately to the medical adviser.

A medical examination is not required of students in the Summer Session, but upon request such routine physical examination will be made for the certification of teachers and for other special purposes.

When the condition of a student's health is such that in the opinion of the University authorities it is unwise for him to remain in the University he may be requested to withdraw.

Summer Session students are not required to offer a vaccination certificate at registration time unless they are also matriculating in one of the Schools or Colleges of the University. Students entering the Graduate School for the first time matriculate when they register in that School and must present a satisfactory certificate of vaccination.

The Health Service staff for the Summer Session includes men and women physicians with nursing, laboratory, and clerical assistants. The offices of the Medical Advisers are in the Old Armory opposite Myron Taylor Hall; the office of the Medical Adviser of Women in Sage College is closed during the Summer Session. The medical advisers will keep the following office hours during the Summer Session: Dr. D. F. Smiley, medical adviser of men, *daily except Sunday, 9 a.m. to 12 a.m.*; Dr. Jennette Evans, medical adviser of women, *daily except Sunday, 10 a.m. to 1 p.m.*; Dr. Ruth Stelle, Mental Hygienist, *daily except Sunday, 11 a.m. to 12 a.m.*; Mrs. Marjorie Smith, registered nurse, *daily except Saturday and Sunday, 9 a.m. to 12 noon and 1 p.m. to 4 p.m.; Saturday, 9 a.m. to 1 p.m.*

On Sundays the medical adviser's office will be open for one hour only, *10 a.m. to 11 a.m.*, and only one of the doctors will be on duty.

No charge is made for the services of the medical advisers or of the nurse.

University Infirmary. The University Infirmary will not be open during the Summer Session. Students requiring hospital care will be admitted to the Tompkins County Memorial Hospital, the Conklin Sanatorium, or the Bailey-Jones Hospital under the usual regulations of those institutions.

THE LIBRARIES

The University Library is open on week days from 7:50 A.M. to 10:30 P.M. In this building are the main library, containing about 500,000 volumes, and most of the seminary and special libraries. The main reading room affords accommodations for more than two hundred readers, and contains a selected library of about 8,000 volumes of reference works. Below stairs is the periodical room in which are kept the current numbers of about 500 journals in various fields of knowledge. These rooms are open to all students. Students properly qualified are allowed the use of the seminary rooms and the books in them. The main collection is primarily a library of reference for use in the building. Students are, however, to a limited extent, allowed to take out books for home use. Persons wishing this privilege must make a deposit of \$5, which will be refunded upon the return of all books taken out.

The Library of the College of Agriculture, in Stone Hall, is open on week days from 9 A.M. to 5 P.M., except Saturday when it is closed at 1 P.M. In it will be found a large collection of bulletins and reports of experiment stations, reference books on agriculture and country life, agricultural periodicals, and the like. The entomological library in Comstock Hall is one of the most complete of its kind in the United States. Nearly all of the departments in which instruction is given have well-selected departmental libraries.

A large library of phonograph and piano recordings, and musical scores to parallel these recordings, is available in the Music Building for the use of the general student body. This library may be used in the Music Building only, during the hours 9 A.M. to 5 P.M. and 7 P.M. to 10 P.M. daily except Sunday, and on Sunday afternoons from 2:00 P.M. to 5:00 P.M.

RECREATION AND PUBLIC EVENTS

Willard Straight Hall is the social center of the University. The Memorial Room is in constant use for reading and study or for relaxation and talk. The recreation rooms are utilized for games and for classes in folk dancing. Receptions held in the lounges bring students and members of the faculty into relationships less formal than those of the class rooms. Dances open to all members of the Summer Session are held each week.

Concerts. A series of five Thursday evening concerts will be given in Bailey Hall at 8:15 P.M. during the first five weeks of the

Summer Session. This series will include two organ recitals by Luther M. Noss, University Organist; details of all of the programs will be announced in the Summer Session calendar. These Thursday evening concerts are free to all students and members of the faculty. A special concert by the Syracuse Symphony Orchestra, André Polah, conductor, will be given in Bailey Hall on Tuesday evening, July 4. A small admission fee will be charged for this concert.

Summer Session Chorus. All members of the Summer Session who are interested in singing in a chorus of mixed men's and women's voices, are asked to meet in the choir loft of Sage Chapel on Thursday afternoon, July 6, at five o'clock. At this time a schedule of rehearsals will be arranged in accordance with the desires of those interested. The chorus will be directed by Luther M. Noss, University Organist and Assistant Professor of Music.

Chamber Orchestra. The String Sinfonietta, Ronald Ingalls, conductor, which plays throughout the regular academic year, will rehearse regularly during the Summer Session and will play one concert. Members of the Summer Session who wish to join this organization should apply to Professor Ingalls at the Drill Hall on Monday, July 3, or at his office in the Music Building on Wednesday, July 5.

Summer Theatre. During the Summer Session weekly performances are given by the Summer Theatre Company on Friday and Saturday evenings, beginning July 7. The performances are given in the theatre of Willard Straight Hall; an admission charge is made. The plays to be produced will be announced each week in the Summer Session Calendar.

The plays of the Summer Theatre Company are directed by Professors Drummond and Stainton, assisted by other members of the Direction Staff. Regularly enrolled members of the courses in Dramatic Production, and no others, may compete for places in the casts and production staffs; detailed announcements will be made in the various classes.

Modern Art Films will be presented weekly by the Summer Theatre. Tickets for the series will be on sale at Willard Straight Hall.

Sage Chapel. Religious services are conducted in Sage Chapel throughout the academic year by clergymen of various religious denominations. There will be services in the Chapel on five Sundays during the Summer Session, July 9 to August 6 inclusive.

Lectures. In addition to the regular classroom work there will be general public lectures on Monday evenings, and also lectures of general interest each Wednesday evening in connection with the work of various departments. They will be announced in the Summer Session Calendar.

Demonstrations at the Observatory. A series of demonstration lectures, illustrated by observations with the 12-inch telescope when the weather permits, will be given on Monday, Wednesday, and Friday evenings throughout the session at the Fuertes Observatory. During the first week of the session these lectures will be open to all registered

students; admission after the first week will be by tickets which may be obtained without charge at the Summer Session office. For further information see page 56.

Excursions. Excursions in connection with the work of certain departments are made to many points of interest. Some of them are open to all members of the Summer Session. Especially noteworthy are the excursions conducted by the Department of Geography and Geology to Enfield Glen, to Watkins Glen, and to Lake Ontario. Details of the plans for these are given on page 54.

Certain field trips conducted by members of the Department of Botany are open to interested persons upon application. Further information may be obtained at the Summer Session office.

OTHER INFORMATION

Routes to Ithaca. Ithaca can be reached from New York City by either the Delaware, Lackawanna & Western Railroad or the Lehigh Valley Railroad. On both roads there are good trains carrying Pullman cars, on the Lackawanna by day, on the Lehigh Valley by day and by night. Passengers from the west reach Ithaca by way of the Lehigh Valley Railroad from Buffalo. From stations on the Boston & Albany Railroad, the shortest route to Ithaca is by way of Syracuse and Auburn. From Philadelphia, and from Baltimore, Washington, and the south by way of the Baltimore & Ohio, the Philadelphia & Reading connects with the Lehigh Valley at Bethlehem. From stations on the Erie, connections with Ithaca can be made by the Lackawanna at Owego. Ithaca has connections with the New York Central at Geneva, Auburn, and Canastota.

Several of the more important bus lines either run through Ithaca or connect at nearby towns with lines into Ithaca. Further information about routes can best be secured at local bus terminals.

Summer Session Calendar. A weekly calendar is issued on each Saturday of the Summer Session. This carries all official notices and gives details of all public events, such as concerts, lectures, excursions, etc. Copies are posted on all bulletin boards and students are advised to consult them for further information about such events. Copies of the Calendar may be obtained upon request at the Summer Session office, at the desk of Willard Straight Hall, and at other University offices.

OFFICERS AND FACULTY

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R. LOUISE FITCH, M.A., Dean of Women.
LOREN C. PETRY, Ph.D., Director of the Summer Session and Chairman of the Administrative Board.

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LEROY LESHER BARNES, Ph.D., Instructor in Physics.
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ALBERT WILLIAM BOESCHE, Ph.D., Professor of German.
SAMUEL LATIMER BOOTHROYD, M.S., Professor of Astronomy and Geodesy.
ROSS BRAUGHT, M.F.A., Assistant Professor of Drawing and Painting.
HERBERT WHITTAKER BRIGGS, Ph.D., Professor of Government.
WILLIAM O. BROWN, Ph.D., Assistant Professor of Sociology, Howard University, Washington, D. C.
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WILLIAM F. BRUCE, Ph.D., Instructor in Chemistry.
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JAMES DABNEY BURFOOT, Ph.D., Assistant Professor of Geology.
EARL NELSON BURROWS, M.C.E., Assistant Professor of Structural Engineering.
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JULIAN EDWARD BUTTERWORTH, Ph.D., Professor of Rural Education and Director of the Graduate School of Education.

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 FRED CLARENBACH, M.A., Instructor in Economics.
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 JACOB ROLAND COLLINS, Ph.D., Professor of Physics.
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 JOHN COURTNEY, M.S., Assistant Professor of Hotel Accounting.
 OTIS FREEMAN CURTIS, Ph.D., Professor of Plant Physiology.
 RALPH WRIGHT CURTIS, M.S.A., Professor of Ornamental Horticulture.
 JOHN S. CURTISS, Ph.D., Instructor in History, Queens College, Flushing, N. Y.
 JONATHAN WADHAMS CURVIN, Ph.D., Assistant Professor of Public Speaking, Hobart College, Geneva, N. Y.
 ELLA MARY CUSHMAN, M.S., Assistant Professor of Home Economics.
 GEORGE I. DALE, Ph.D., Professor of Romance Languages and Literatures.
 KARL M. DALLENBACH, Ph.D., Professor of Psychology.
 ADAM CLARKE DAVIS, JR., M.E., Professor of Experimental Engineering.
 BENJAMIN H. DAVIS, Ph.D., Instructor in Plant Pathology, Ohio State University, Columbus, Ohio.
 H. HURFORD DAVISON, M.B.A., Supervisor of Distributive Occupational Education, State Education Dept., Albany, N. Y.
 JOSEPH C. DOANE, M.D., Medical Director of the Jewish Hospital, Philadelphia, Pa.
 MARION DOSCHER, M.A., Assistant in Education.
 ALEXANDER M. DRUMMOND, M.A., Professor of Public Speaking and Director of the University Theatre.
 CHARLES L. DURHAM, Ph.D., Professor of Latin.
 ARTHUR JOHNSON EAMES, Ph.D., Professor of Botany.
 KARL W. EBELING, B.S., Chairman of the Department of Industrial Arts, Samuel J. Tilden High School, Brooklyn, N. Y.
 LYNN A. EMERSON, Ph.D., Professor of Industrial Education.
 MARK LELAND ENTORF, B.A., Extension Professor of Home Economics.
 JENNETTE EVANS, M.D., Assistant Professor of Hygiene and Medical Adviser of Women.
 NATHANIEL W. FAXON, M.D., Director of Massachusetts General Hospital, Boston, Mass.
 EMERY N. FERRISS, Ph.D., Professor of Rural Education.
 HARRY MORTON FITZPATRICK, Ph.D., Professor of Mycology.
 ERNEST S. FORD, M.S., Instructor in Botany.
 MARVIN WALTER FORMO, B.Chem., Assistant in Chemistry.
 MARIE BELLE FOWLER, M.A., Professor of Home Economics.
 ALLAN CAMERON FRASER, Ph.D., Professor of Plant Breeding and Genetics.
 JESSIE ALICE FREEMAN, M.S., Assistant in Home Economics.
 FRANK SAMUEL FREEMAN, Ed.D., Professor of Education.
 WALTER HOYT FRENCH, Ph.D., Assistant Professor of English.
 WILLIAM JOSEPH FRIERSON, Ph.D., Assistant Professor of Chemistry, Hampden-Sydney College, Hampden-Sydney, Va.
 PAULINE WITSAMAN FULLER, B.S., Instructor in Home Economics.
 ROBERT GARD, M.A., Assistant in Public Speaking.
 PEARL GARDNER, Ph.D., Instructor in Rural Education.
 FREDERIC DAUGHERTY GARRETT, B.A., Instructor in Zoology.
 PAUL WALLACE GATES, Ph.D., Assistant Professor of History.
 WILBUR ELWYN GILMAN, Ph.D., Associate Professor of Public Speaking, University of Missouri, Columbia, Mo.
 JAMES WALLACE GIVENS, Ph.D., Instructor in Mathematics.
 EVA LUCRETIA GORDON, M.S., Assistant in Rural Education.
 GUY EVERETT GRANTHAM, Ph.D., Professor of Physics.
 JACOB M. GRAY, M.C.E., Chairman of the Department of Technical Drafting and Design, Technical High School, Brooklyn, N. Y.
 ALRIK GUSTAFSON, Ph.D., Instructor in English.

- ANDREW COMSTOCK HAIGH, B.A., Assistant Professor of Music.
WILLIAM JOHN HAMILTON, JR., Ph.D., Assistant Professor of Zoology.
JOSEPH V. HANNA, Ph.D., Assistant Professor of Psychology, New York University, and Secretary of the Personnel Counseling Service, West Side Y. M. C. A., New York, N. Y.
NICHOLAS HANS, Ph.D., D.Litt., Lecturer in Education at the Froebel Society Courses for Teachers, London, England.
GEORGE R. HANSELMAN, M.E., Assistant Professor of Administrative Engineering.
FLOYD ARTHUR HARPER, Ph.D., Professor of Marketing and Investigator in Marketing in the Experiment Station.
KATHARINE WYCKOFF HARRIS, M.A., Professor of Home Economics and Manager of Cafeteria.
VAN BREED HART, Ph.D., Extension Professor of Farm Management.
DOROTHY M. HATCH, B.S., Assistant in Home Economics.
WALTER EDWARD HEMING, B.S.A., Instructor in Zoology.
GRACE MILDRED HENDERSON, M.S., Extension Instructor in Home Economics.
JAMES LYNN HOARD, Ph.D., Assistant Professor of Chemistry.
PAUL THOMAS HOMAN, Ph.D., Professor of Economics.
EDWIN RAYMOND HOSKINS, Ph.D., Assistant Professor of Rural Education.
HARLEY EARL HOWE, Ph.D., Professor of Physics.
HELEN L. HULTZ, M.A., Teacher in Fox Meadow School, Scarsdale, N. Y.
CHESTER JERMAIN HUNN, B.S.A., Assistant Professor of Ornamental Horticulture.
THOMAS NORMAN HURD, Ph.D., Extension Assistant Professor of Marketing.
WALLIE ABRAHAM HURWITZ, Ph.D., Professor of Mathematics.
RONALD INGALLS, B.Mus., Assistant Professor of Music.
PEARL ZIEGLER JANSSEN, M.S., Instructor in Home Economics.
JOSEPH OLMSTEAD JEFFREY, M.M.E., Assistant Professor of Experimental Engineering.
BURTON AARON JENNINGS, B.S., Extension Professor of Agricultural Engineering.
PHILIP GUSTAV JOHNSON, Ph.D., Assistant Professor of Rural Education.
BURTON WADSWORTH JONES, Ph.D., Assistant Professor of Mathematics.
CHARLES WILLIAM JONES, Ph.D., Assistant Professor of English.
RIVERDA HARDING JORDAN, Ph.D., Professor of Education.
LESLIE GORDON JOYNER, B.S., Assistant in Chemistry.
PETER PAUL KELLOGG, Ph.D., Instructor in Ornithology.
MYRON SLADE KENDRICK, Ph.D., Assistant Professor of Rural Economy.
EARL HESSE KENNARD, Ph.D., Professor of Physics.
BENJAMIN FREEMAN KINGSBURY, Ph.D., Professor of Histology and Embryology.
CATHERINE KNAPP, Teacher in Belle Sherman School, Ithaca, N. Y.
ELAINE KNOWLES, M.S., Instructor in Home Economics.
GEORGE KREEZER, Ph.D., Assistant Professor of Psychology.
PAUL J. KRUSE, Ph.D., Professor of Rural Education.
CLAUDE L. KULP, M.A., Superintendent of Schools, Ithaca, N. Y.
VIVIAN STREETER LAWRENCE, Ph.D., Assistant Professor of Mathematics.
GEORGE HAMOR LEE, M.S. in Eng., Instructor in Mechanics of Engineering.
DANIEL CLARK LEWIS, JR., Ph.D., Instructor in Mathematics.
JOHN COLBY LEWIS, M.F.A., Instructor in Public Speaking and Technical Director of the University Theatre.
GORDON SCOTT LITTLE, Coach of Swimming.
FRANKLIN A. LONG, Ph.D., Instructor in Chemistry.
FREDERICK GEORGE MARCHAM, Ph.D., Professor of History.
CLYDE WALTER MASON, Ph.D., Professor of Chemical Microscopy.
LOUIS MELVILLE MASSEY, Ph.D., Professor of Plant Pathology.
ROBERT MATHESON, Ph.D., Professor Economic Entomology.
HOWARD BAGNALL MEEK, Ph.D., Professor of Hotel Administration.
AMY GRACE MEKEEL, Ph.D., Instructor in Zoology.
CHARLOTTE HOPKINS MERRELL, B.S., Formerly Assistant Professor of Institution Management.
WILLIAM T. MILLER, Ph.D., Instructor in Chemistry.
BENTON SULLIVAN MONROE, Ph.D., Professor of English.

- CLYDE B. MOORE, Ph.D., Professor of Rural Education.
 RICHARD ALLAN MORDOFF, Ph.D., Professor of Meteorology.
 CHARLES MCCAMMON MOTTLEY, Ph.D., Assistant Professor of Limnology.
 JOHN ROBERT MOYNIHAN, M.M.E., Assistant Professor of Experimental Engineering.
 D. E. MURRAY, B.A., Director of Physical Education, Madison Junior High School, Rochester, N. Y.
 WILLIAM R. NEEDHAM, B.S., Specialist in Hotel Advertising.
 CHARLES MERRICK NEVIN, Ph.D., Professor of Geology.
 MELVIN LORREL NICHOLS, Ph.D., Professor of Analytical Chemistry.
 LUTHER MELANCHTHON NOSS, M.Mus., Assistant Professor of Music.
 CHARLES EDMUND PALM, Ph.D., Professor of Entomology.
 ELMER A. PALMATIER, M.S., Assistant in Botany.
 E. LAURENCE PALMER, Ph.D., Professor of Rural Education.
 LYMAN GEORGE PARRATT, Ph.D., Assistant Professor of Physics.
 LOREN C. PETRY, Professor of Botany, and Director of the Summer Session.
 MARION CAROLINE PFUND, Ph.D., Professor of Home Economics.
 ROBERT ARNOLD POLSON, Ph.D., Extension Assistant Professor of Rural Sociology Organization.
 PAUL RUSSEL POPE, Ph.D., Professor of German.
 JOSEPH PULLMAN PORTER, M.S.A., Acting Professor of Ornamental Horticulture.
 FRANK H. RANDOLPH, M.E., Professor of Institutional Engineering.
 JOHN ADAM FITZ RANDOLPH, Ph.D., Assistant Professor of Mathematics.
 PHILIP ADNA READIO, Ph.D., Professor of Economic Entomology.
 ARTHUR BERNHARD RECKNAGEL, M.F., Professor of Forest Management and Utilization.
 KATHARINE MCCORMICK REEVES, B.A., Assistant Professor of Home Economics.
 ROBERT SIGMUND REICH, B.S., Instructor in Ornamental Horticulture.
 DOROTHY DEANE ROBERTS, M.A., Instructor in Home Economics.
 LEMO DENNIS ROCKWOOD, Ph.D., Professor of Home Economics.
 EDWARD M. RODEN, M.A., Instructor in Industrial Arts, Eastwood High School, Syracuse, N. Y.
 LOUIS MICHAEL ROEHL, B.S., Professor of Farm Mechanics.
 NANCY MCNEAL ROMAN, M.A., Extension Professor of Home Economics.
 VIRGIL RUEGSEGER, Ph.D., District Principal, Northwest District, Ithaca, N. Y.
 DORA SCHNEIDER, B.S., Assistant in Home Economics.
 ALMA F. SCIDMORE, Assistant Professor of Home Economics.
 GLEN SHORTLIFFE, M.A., Instructor in French.
 DEAN FRANKLIN SMILEY, M.D., Professor of Hygiene and Medical Adviser.
 LUCILLE GRANT SMITH, B.S., Extension Instructor in Floriculture and Ornamental Horticulture.
 WILLIAM ARTHUR SMITH, Ph.D., Assistant Professor of Rural Education.
 THEODORE SNOOK, Ph.D., Assistant Professor of Histology, Syracuse University, Syracuse, N. Y.
 WALTER HUTCHINSON STANTON, Ph.D., Assistant Professor of Public Speaking and Assistant Director of the University Theatre.
 CLIFFORD NICKS STARK, Ph.D., Professor of Bacteriology.
 PAULINE WHITSON STARK, M.S., Instructor in Bacteriology.
 RUTH STELLE, M.D., Instructor in Hygiene and Assistant Medical Adviser of Women.
 CARL STEPHENSON, Ph.D., Professor of History.
 ROLLAND MACLAREN STEWART, Ph.D., Professor of Rural Education.
 WALTER KING STONE, Assistant Professor of Architecture.
 EVERETT MILTON STRONG, B.S. in E.E., Assistant Professor of Electrical Engineering.
 EDWARD ANDREWS TENNEY, Ph.D., Assistant Professor of English.
 FRANC THÉNAUD, Licencié-en-Droit, Assistant Professor of French, Lafayette College, Easton, Pa.
 CHARLES KENNETH THOMAS, Ph.D., Assistant Professor of Public Speaking.
 HAROLD W. THOMPSON, Ph.D., Litt.D., Professor of English, State College for Teachers, Albany, N. Y.
 CRAIG RINGWALT THOMPSON, Ph.D., Instructor in English.

- KERSTIN V. THORIN, M.A., Instructor in Physical Education.
CLARENCE DEWITT THORPE, Ph.D., Professor of English and the Teaching of English, University of Michigan, Ann Arbor, Mich.
FLORA M. THURSTON, M.A., Acting Professor of Rural Education.
DIRAN HAGOPOS TOMBOULIAN, Ph.D., Instructor in Physics.
JOHN E. TRAINER, M.S., Assistant in Rural Education.
LEONARD CHURCH URQUHART, C.E., Professor of Structural Engineering.
JOHN HOWARD VAN DYKE, M.A., Assistant in Histology and Embryology.
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ROBERT VOSS, M.S. in Ed., Director of Educational and Vocational Guidance, Rochester, N. Y.
RUSSELL HALDERMAN WAGNER, Ph.D., Assistant Professor of Public Speaking.
ETHEL BUSHNELL WARING, Ph.D., Professor of Home Economics.
ELLEN KEMP WATSON, B.S., Assistant in Home Economics.
PAUL JOHN WEAVER, B.A., Professor of Music.
HARRY PORTER WELD, Ph.D., Professor of Psychology.
JOHN WEST WELLS, Ph.D., Department of Science, State Normal School, Fredonia, N. Y.
HERBERT AUGUST WICHELS, Ph.D., Professor of Public Speaking.
ELIZABETH WIEGAND, B.S., Assistant in Home Economics.
KARL MCKAY WIEGAND, Ph.D., Professor of Botany.
DELPHA ELIZABETH WIESENDANGER, M.S., Extension Instructor in Home Economics.
CARL L. WILSON, Ph.D., Professor of Botany, Dartmouth College, Hanover, N. H.
ELKIN CALHOUN WILSON, Ph.D., Instructor in English.
GARFF BELL WILSON, M.A., Associate Professor of Public Speaking, Humboldt State College, California.
ANDREW LEON WINSOR, Ph.D., Professor of Rural Education.
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FLORENCE E. WRIGHT, M.S., Extension Assistant Professor of Home Economics.
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FORREST BLYTHE WRIGHT, Ph.D., Assistant Professor of Agricultural Engineering.
MARGARET WYLIE, Ph.D., Extension Professor of Home Economics.
BENJAMIN PERCY YOUNG, Ph.D., Assistant Professor of Zoology.

COURSES OF INSTRUCTION

ARRANGEMENT OF SUBJECTS

Subjects of instruction are grouped into eleven divisions; in each division subjects of instruction are arranged alphabetically. The index at the end of this Announcement should be referred to for subjects not readily found.

CLASS SCHEDULES

In most courses of instruction, classes will meet five times a week, on each week day except Saturday. Such classes will meet on July 8, the first Saturday of the Session, but on no other Saturdays. Class periods begin on the hour unless otherwise indicated, and are fifty minutes in length. Laboratory periods are of various lengths, as indicated in the description of courses which include laboratory work. The meeting place of each course is given in the description of the course. Goldwin Smith Hall is indicated by the symbol *GS*: all other buildings are named.

UNDERGRADUATE AND GRADUATE COURSES

There is, in general, no sharp distinction at Cornell University between graduate and undergraduate courses. In this Announcement courses are marked in three ways:

***Courses marked with an asterisk are intended primarily for undergraduates.** Students registering for these courses will not receive credit toward a graduate degree of Cornell University unless such credit is specifically recommended in writing by the special committee in charge of their work at the time of registration.

****Courses marked with two asterisks are intended primarily for students who are candidates for advanced degrees.** Undergraduates with adequate preparation may register for these courses only after receiving permission from the instructors in charge.

Courses not marked are open to advanced undergraduates and graduates. Graduate students registering for these courses must inform the instructors in charge that they are candidates for advanced degrees and must be prepared to do any additional work that may be required of students taking these courses on a graduate level.

FINE ARTS

DRAWING AND PAINTING

The following courses correspond generally to those of the regular session of the University. Classes are small enough to permit individual instruction adapted to the students' needs. The advanced student is given work and criticism according to his ability. All materials needed may be obtained in Ithaca.

An illustrated folder describing the work of this department in detail, and especially as it is conducted in the regular session, will be sent upon application to the College of Architecture, Cornell University, Ithaca, New York.

***S 1. Elementary Drawing.** Credit two hours. Daily except Sat., 8-10. *Third floor, Franklin.* Assistant Professor BRAUGHT.

This course for beginners in drawing embraces freehand perspective, drawing of geometrical objects and simple casts. The course will begin with pencil work and continue with light and shade in charcoal.

***S 2. Antique.** Credit two hours. Daily except Sat., 8-10. *Third floor, Franklin.* Assistant Professor BRAUGHT.

Prerequisite for this course is a knowledge of the elements of drawing. Instruction will be given in charcoal from casts.

***S 3. Drawing from the Human Figure.** Credit two hours. Daily except Sat., 10-12. *Third floor, Franklin.* Assistant Professor BRAUGHT.

Study from living model in charcoal. Course S 1 or its equivalent is prerequisite to this course. A studio fee of \$10 is charged.

*S 4. **Elementary Color.** Credit two hours. Daily except Sat., 8-10. *Third floor, Franklin.* Assistant Professor STONE.

Instruction for beginners in color. Students work from simple groups. Talks will be given on the theory of color.

*S 5. **Advanced Color.** Credit two hours. Daily except Sat., 8-10. *Third floor, Franklin.* Assistant Professor STONE.

As in course S 4, students in this course work from groups (vases, fruit, flowers) in oil or in water color. Those who have not had course S 4 or its equivalent may enter this course on submission of examples of original work. Copies of others' work will not be sufficient for entrance.

*S 6. **Outdoor Sketching in Color.** Credit two hours. Daily except Sat., 2-4. *Third floor, Franklin.* Assistant Professor STONE.

A knowledge of the elements of drawing and the elements of color is a prerequisite to this course. Instruction is given in oil from landscape.

The unusual variety and charm of the natural environment of Cornell give an abundance of subject-matter from which to work. There are woodland, open farming country, lakes and streams, broad panoramic views, and rugged gorges within easy walking distance of the campus.

MUSIC

*S 1. **Theory and Practice of Music.** Credit two hours. Daily except Sat., 9. Open to all students who have had little or no training in music. Students offering music for entrance credit may not take this course for credit. *Music Building, 320 Wait Avenue.* Assistant Professor NOSS.

An elementary course in the theory of music, including notation and terminology, scale, interval, and chord structure, melody writing, ear training, sight singing, and the elements of musical design.

*S 5a. **The Art of Music.** Credit two hours. Daily except Sat., 10. Open to sophomores and upperclassmen. *Music Building, 320 Wait Avenue.* Professor WEAVER.

An approach to the rational understanding and enjoyment of the art of music. This part of the course considers especially the smaller forms employed by composers of the classic and romantic schools, as illustrated by various types of orchestral, chamber, violin, piano, and vocal music. The course is taught from the appreciative standpoint.

*S 8. **The Orchestra.** Credit two hours. Daily except Sat., 11. Open to all students. *Music Building, 320 Wait Avenue.* Assistant Professor INGALLS.

A study of the instruments of the orchestra, their characteristics and capacities, their functions singly and in combinations; and of the orchestra as a whole, and various aspects of orchestral music. A non-technical course, requiring no ability to play these instruments and taught from the appreciative standpoint.

*S 10b. **History of Music.** Credit two hours. Daily except Sat., 12. Open to sophomores and upperclassmen. *Music Building, 320 Wait Avenue.* Professor WEAVER.

A survey of the evolution of the art of music, with particular reference to questions of style and to the place of music in the artistic and social life of nations. This part of the course covers the period from approximately 1700 to the present day, including the classic, romantic, and current schools of musical thought.

S 52. **Brahms.** Credit two hours. Daily except Sat., 12. *Music Building, 320 Wait Avenue.* Prerequisite, a course in music history and a working knowledge of elementary harmony. Assistant Professor INGALLS.

A study of the life and works of Johannes Brahms. Special problems will be assigned to each student suitable to his former study in the field.

Chorus. No credit. All men and women interested in singing in a Summer Session chorus will meet at 5 p.m. on Thursday, July 6, in the choir loft of the *Sage Chapel*, for discussion of plans and decision on a suitable schedule of rehearsals. Assistant Professor NOSS will conduct the chorus.

Orchestra. No credit. Members of the Summer Session interested in joining the String Sinfonietta should apply to Assistant Professor INGALLS, on Monday, July 3, in the Drill Hall, or on Wednesday, July 5, at his office in the *Music Building, 320 Wait Avenue.*

Applied Music. Individual instruction in organ, piano, and violin. Credit two hours for students majoring in music; for other students, no credit. Hours to be arranged. *Music Building, 320 Wait Avenue.* Assistant Professors HAIGH, INGALLS and NOSS.

Individual instruction in applied music is offered primarily for students wishing to major in music, and in the case of such students the work of the course is correlated with the theoretical courses being pursued by the student. Whenever the facilities of the department permit (1) other students and, during this session, (2) non-students, may register for this instruction. In each case, permission to register should be obtained from Professor WEAVER. In the case of students majoring in music, four terms of instruction are available, and the individual student is assigned to the course for which his previous training qualifies him.

Individual instruction is offered in organ under Assistant Professor NOSS, in piano under Assistant Professor HAIGH, and in violin under Assistant Professor INGALLS. The normal registration involves two half-hour lessons a week at a special fee of \$2 a period. Practice facilities are available for each instrument; the fee for a daily hour for the term is \$3 in the case of a piano practice room in the Music Building, and \$11 in the case of the organ in the Sage Chapel. After obtaining permission to register for this instruction, students should consult the instructor about lesson hours, and the secretary of the department about practice hours.

LANGUAGES AND LITERATURES, PUBLIC SPEAKING AND DRAMA

ENGLISH

Courses S 1 and S 2 taken together will be accepted as the equivalent of either the first term or the second term of English 2 in the regular University session, but not of both.

*S 1. **Freshman Composition.** Credit two hours. Daily except Sat., 8. GS 124. Dr. C. R. THOMPSON.

A study of the principles of composition, intended to teach the habit of clear and effective expression; reading of models, frequent writing of themes, class discussions; conferences at hours to be appointed.

*S 2. **Introductory Course in Literature.** Credit two hours. Daily except Sat., 9. GS 124. Assistant Professor JONES.

A study of selections from Shakespeare and Browning, intended to aid the student in acquiring habits of careful reading.

*S 4. **Composition.** Credit two hours. Daily except Sat., 8. GS 164. Assistant Professor TENNEY.

Open to those who have passed both terms of the freshman course in composition and literature. A study of the technique of exposition, including the reading of several recent essays; and frequent practice in writing, with criticisms in personal conferences.

S 7. **Nineteenth Century Poetry.** Credit two hours. Daily except Sat., 9. GS 162. Professor MONROE.

A study and discussion of the most important poems of Byron, Shelley, and Keats. Texts: *Byron*, ed. Chew and Bredvold, 2 vols; Modern Library *Keats and Shelley*.

S 8. **Modern American Poetry.** Credit two hours. Daily except Sat., 10. GS 142. Professor H. W. THOMPSON.

The leading poets from 1890 to the present. Text: Untermeyer, *Modern American Poetry*, fifth revised edition.

S 9. **The Modern Novel in Europe.** Credit two hours. Daily except Sat., 10. GS 162. Dr. GUSTAFSON.

Lectures on the general background of the European novel from 1850 to the present day. An intensive examination, including classroom discussions, of certain representative novels of the period such as Flaubert's *Madame Bovary*, Tolstoi's *Anna Karénina*, Thomas Mann's *Buddenbrooks*, Sigrid Undset's *Kristin Lavransdatter*, and Hamsun's *Growth of the Soil*.

S 11. **American Literature to the Civil War.** Credit two hours. Daily except Sat., 8. GS 156. Professor H. W. THOMPSON.

A study of literary, social, and political ideals of America as reflected in the writings of Irving, Bryant, Cooper, Poe, Emerson, Thoreau, Hawthorne, Melville, Longfellow, Whittier, Holmes, and Lowell. Text: Quinn, Baugh, and Howe, *The Literature of America*, Vol. 1.

S 14. **Biography.** Credit two hours. Daily except Sat., 10. GS 164. Assistant Professor TENNEY.

A study of four biographical works: Plutarch's *Lives*, *The Little Flowers of Saint Francis*, Boswell's *Johnson*, and a modern biography.

S 15. **Victorian Poetry.** Credit two hours. Daily except Sat., 10. GS 160. Assistant Professor FRENCH.

A study of the greater poets from 1830 to 1880, with special attention to Tennyson.

S 16. **The English Language.** Credit two hours. Daily except Sat., 11. GS 162. Professor MONROE.

A study of some significant features in the growth and development of the mother tongue: language and grammar in general; some misconceptions about the life of language; the relationships of English; phonetics; the English vocabulary; inflections; native resources and foreign influences; the bearing of historical grammar on present forms and usages, spoken and written.

Baugh's *History of the English Language* is used as a basis for recitations, lectures, and collateral reading. The course does not require previous knowledge of Old or Middle English. Extra work is required for credit in the Graduate School.

S 17. **The Modern Drama.** Credit two hours. Daily except Sat., 12. GS 160. Dr. GUSTAFSON.

A study in the origins of the modern drama in late nineteenth century Europe, together with an examination of certain characteristic twentieth century dramatic developments in Europe and America. Among the dramatists who will have particular attention are Ibsen, Strindberg, Maeterlinck, Becque, Chekhov, Pirandello, Hauptmann, Shaw, Toller, and O'Neill.

S 20. **Shakespeare.** Credit two hours. Daily except Sat., 12. GS 221. Dr. WILSON.

A study of the dramatic art of Shakespeare as illustrated by *Hamlet*, *Macbeth*, *Othello*, *King Lear*, and *Antony and Cleopatra*; with supplementary readings.

S 22. **Milton.** Credit two hours. Daily except Sat., 11. GS 160. Assistant Professor JONES.

A study of Milton's poetry. Text: H. C. Beeching, *Milton's Complete Poetical Works*.

S 24. **Chaucer.** Credit two hours. Daily except Sat., 12. GS 164. Assistant Professor FRENCH.

An introductory study of the *Prologue* and some of the *Canterbury Tales*, with special attention to their literary and social aspects. Previous training in reading Middle English will not be expected. Text: F. N. Robinson, *Chaucer's Complete Works*.

S 31. **Dramatic Literature.** Credit two hours. Daily except Sat., 9. GS 183. Dr. WILSON.

A study of the theory and practice of tragedy illustrated from the drama of Greece, Rome, and France (in translation), and Elizabethan and Jacobean England. Readings, lectures, and reports.

S 33. **Teachers' Course.** (Education S 33). Credit two hours. Daily except Sat., 12. GS 156. Professor THORPE.

A study of the outstanding problems in the teaching of English composition, literature, and language. Consideration will be given to aims, relative values of materials, organization of the course, specific methods, and tests. Special topics will include motivation, the articulation of subject matter, the adjustment of aims and practice to current educational theory, and the significance for classroom procedure of recent experiments and studies in English.

S 34. Elizabethan Literature. Credit two hours. Daily except Sat., 11. GS 164. Dr. C. R. THOMPSON.

A study of the works of representative prose writers, 1550-1600: Ascham, Lyly, Sidney, Greene, Nashe, Lodge, Deloney, Hooker, and others.

S 36. The Romantic Movement. Credit two hours. First meeting W 2:30; subsequent hours to be arranged. GS 156. Professor THORPE.

A rapid survey of characteristic pre-romantic ideas and moods in the eighteenth century, followed by a more intensive examination of certain typical romantic poets and essayists, such as Wordsworth, Coleridge, Lamb, Hazlitt, and DeQuincey. Some attention given to the relations between English romantic tendencies and romanticism on the continent.

Informal Study. Opportunities are offered, as far as time and facilities permit, for graduate students to do work outside of or supplementary to that provided in regular courses: for example, in Old English, in Middle English, in the essay, in the drama, in Elizabethan literature, etc. Such informal study can not be credited toward an advanced degree. Students wishing to avail themselves of this privilege may consult Professor MONROE on registration day or may write to him in advance.

FRENCH

***S 1. Elementary Course.** Credit four hours. Twice daily except Sat., 8 and 12. GS 283. Mr. SHORTLIFFE. Entrance credit, one unit.

A course for beginners, offering intensive drill in the fundamentals of French. Reading of simple texts.

***S 3. Second Course.** Credit four hours. Twice daily except Sat., 8 and 12. GS 281. Mr. BATES. Entrance credit, one unit.

Prerequisite, French S 1, or one year of college French, or two years of high-school French. Reading, writing, and speaking French, with a review of French grammar.

***S 4. Reading of French.** Credit two hours. Daily except Sat., 10. GS 281. Mr. SHORTLIFFE.

Prerequisite, French S 3, or two years of college French, or three years of high-school French. Rapid reading of standard French authors.

***S 5. Written and Spoken French.** Credit two hours. Daily except Sat., 9. GS 283. Mr. BATES.

Prerequisite, French S 3, or two years of college French, or three years of high-school French. Practice in oral and written French, with a review of grammar.

S 9. Written and Spoken French, Advanced. Credit two hours. Daily except Sat., 12. GS 277. Assistant Professor THÉNAUD.

Prerequisite, French S 5 or its equivalent. Especially recommended to candidates for the examination for the approval of Oral Credit in New York State. Designed especially for teachers and prospective teachers. Translation into French; discussion of important points of syntax; theme writing; oral exercise. The course is conducted in French.

S 28. Ronsard and the Pléiade. Credit two hours. Daily except Sat., 11. GS 283. Professor BISHOP.

Prerequisite, French S 4 or its equivalent. Lectures, outside reading, and reports. The course is conducted in English.

S 36. Le Théâtre Contemporain. Credit two hours. Daily except Sat., 11. GS 277. Assistant Professor THÉNAUD.

Prerequisite, French S 4 and S 5 or their equivalent. Lectures, outside reading, and reports. The course is conducted in French.

****S 47. French Seminary.** Credit two hours. Daily except Sat., 9. *French Seminary Room, Library.* Professor BISHOP.

Discussion of a special topic in the field of modern French literature. This course is especially for graduate students and candidates for the degree of Master of Arts.

Lectures. A series of lectures in French dealing with French national life will be given by members of the instructing staff on Wednesday evenings at 8 o'clock in *Goldwin Smith Hall* 290.

French Conversation. Tables for informal conversation, under supervision of the instructing staff, will be reserved in *Willard Straight Cafeteria*, from 10 to 12 daily.

GERMAN

***S 1. First Year German.** Grammar, reading, oral training, composition. Credit four hours. Twice daily except Sat., 8 and 12. *GS* 183. Professor POPE. Entrance credit, one unit.

After successfully completing this course, students can, by supplementary reading during the summer, prepare themselves for the College Board entrance examination in second year German.

***S3. Third Year German.** Reading, grammar, composition, oral training. Credit four hours. Twice daily except Sat., 8 and 12. *GS* 177. Professor BOESCHE. Entrance credit, one unit (third unit).

Prerequisite, two years of high school German or the equivalent.

S 6. Advanced Practical Course in German Grammar. Credit two hours. Daily except Sat., 11. *GS* 177. Professor BOESCHE.

For teachers and advanced students. A presentation of the chief problems of German grammar, such as the auxiliary use of *haben* and *sein*; the use of the subjunctive; moods and tenses in indirect discourse; separable and inseparable verbs; the order of words; the use of cases; etc. Historical explanations of modern conditions will be given but no knowledge of the earlier periods of the German language will be required.

S 8. Richard Wagner. Credit two hours. Daily except Sat., 9. *GS* 190. Professor POPE.

Lectures in English on Wagner's theory of the music drama, the sources of his operas, his place in German literature, and his influence on modern culture. The texts of the principal operas will be read in class, and occasional illustrative recitals will be given.

A knowledge of German is not required. The textbook contains the German and English texts in parallel columns.

German Lectures. Lectures or interpretative readings in German will be given by members of the department on Wednesday evenings at 8 o'clock in *GS* 190.

GREEK

S 1. Introduction to Greek and to the Reading of Homer. Credit two hours. Daily except Sat., 11. *GS* 124. Professor CAPLAN.

This course is intended (a) for graduate students who have had no Greek; (b) for high-school teachers of Latin who have had no direct acquaintance with Greek and are therefore deprived of one of the chief sources of understanding and appreciating the content of the Latin authors they present in class; (c) for students of literature who desire by intensive work during a Summer Session to lay the foundation for a first-hand appreciation of the literary masterpieces of Greece. Beginning with the alphabet, the course will give a thorough grounding in necessary forms, flexions, and syntax, and will proceed to the reading of a portion of the first book of Homer's *Iliad*.

S 2. Advanced Greek. Credit two hours. Daily except Sat., 12. *GS* 124. Professor CAPLAN.

For students who have mastered the elements and wish to enlarge their knowledge of Greek. Readings will be chosen to suit the needs of those who enter the course.

LATIN

The work of the Summer Session in the field of Latin study is intended primarily for actual and prospective teachers of the subject in the secondary schools.

A series of advanced courses is offered for those who by their undergraduate training are qualified to enter the Graduate School, or to continue their work therein, as candidates for the degree Master of Arts with Latin as a major or a minor subject. Those teachers who by previous training and experience are similarly prepared to pursue courses in Latin on a graduate level will be admitted to the work of the Summer Session without registration in the Graduate School.

Prospective students in the 1939 Summer Session are invited to correspond with Professor CHARLES L. DURHAM, Goldwin Smith Hall, Ithaca, N. Y., concerning the nature and the scope of the work in Latin. Those who wish to begin their candidacy for the degree Master of Arts should forward to the office of the Graduate School, on or before June 15, such credentials of undergraduate work leading to the degree of A.B. as will entitle them to admission to the Graduate School.

****S 1. Methods, Materials, and Background for the Second and Third Years of High School Latin.** Credit two hours. Daily except Sat., 9. *GS 128.* Professor DURHAM.

Caesar's Gallic War in the second year of Latin study, the critical year of the Latin program in the high school, and the significance of the Commentaries in the history and culture of Europe; Cicero in the work of the third year. Primarily for those who have an acquaintance with the field, and are actual or prospective teachers of Latin. Lectures, discussions, conferences.

The credit of two hours carried by this course is countable toward the group of six semester hours in General and Special Methods required by the New York State Department of Education as part of the prerequisite for the Professional Certificate for high school teaching. Similar credit in an elective group will be recognized by the State of Pennsylvania. Students from states where other requirements for teachers' certificates are in force are advised to secure in advance from their own school authorities an indication that this course will be counted towards the satisfaction of their particular professional requirements.

****S 2. Latin Literature.** Credit two hours. Daily except Sat., 10. *GS 128.* Professor DURHAM.

Interpretation of significant works not usually included in the undergraduate curriculum; selections from late, medieval, and modern Latin writers, particularly for their important bearing on Latin in the secondary schools.

****S 4. Theses and Informal Work.** Direction in the preparation of theses by candidates for the Master's degree, and in the investigation of special problems which arise in connection with the work of the individual teachers. Hours a week and credit by arrangement; total credit for thesis will not exceed six hours. Professors DURHAM and CAPLAN.

Special attention is called to the courses in Greek.

PUBLIC SPEAKING, DRAMA, AND THE THEATRE

PUBLIC SPEAKING AND SPEECH

The courses in Public Speaking and Speech represent the following fields: Oral Interpretation; Speech Training; and Oral English. Either S 28 or S 32 (not both) may be counted as a course in methods approved by the New York State Department of Education for the teachers' certificate.

Students may confer either with the departmental representatives in the Drill Hall, or with the individual instructors, who will be in their offices both on registration day and on the first day of instruction. For information about advanced work in Speech Training and Phonetics, consult Mr. THOMAS, *GS 23*; in Rhetoric and Public Speaking, Mr. WICHELNS, *GS 235*, or Mr. WAGNER, *GS 237*.

***S 1. Public Speaking.** Credit two hours. Daily except Sat., 11. *GS 21.* Associate Professor GILMAN.

Practice in speech-making, on topics of current interest. Methods of preparation and delivery studied in relation to practice; class discussions; conferences. Regular students passing the course are admitted to Public Speaking 2 and 12. High school teachers will find the methods applicable to their work in public speaking and oral English.

S 2. Discussion. Credit two hours. Daily except Sat., 10. *GS* 234. Assistant Professor WAGNER.

Practice in discussion of current public questions as a member of various kinds of groups: committee, panel, symposium, forum, etc. Study of principles and types; conferences. Opportunity will be offered to plan and conduct discussions.

***S 10. Oral Interpretation of Literature.** Credit two hours. Daily except Sat., 12. *GS* 21. Associate Professor GILMAN.

Training in interpretative reading of prose and poetry; study of principles; constant practice; conferences.

S 14. Public Opinion. Credit two hours. Daily except Sat., 11. *GS* 234. Professor WICHELS.

Modern theories of public discussion, mass persuasion, and opinion control. Lectures and discussions.

****S 20. Theories of Public Address.** Credit two hours. Daily except Sat., 12. *GS* 234. Assistant Professor WAGNER.

Lectures and discussions. A survey: social function of speech-making; purposes and forms of public address; speech preparation; structure; style; delivery; theories of persuasion.

[**S 21. History of Oratory.** Credit two hours. Professor WICHELS. Not given in 1939; given in 1940.]

[***S 22. Rhetorical Criticism.** Credit two hours. Assistant Professor WAGNER. Not given in 1939; given in 1941.]

S 28. Teachers' Course in Oral English and Public Speaking. Credit two hours. Daily except Sat., 9. *GS* 234. Professor WICHELS.

Designed for secondary school teachers whose work includes oral English or public speaking. Aims and standards; organization of courses; methods and materials; planning and conduct of speech programs and activities. Examination of reports and syllabuses on oral English and speech in secondary schools. Individual conferences for special problems.

S 32. Teachers' Course in Phonetics and Speech Training. Credit two hours. Daily except Sat., 9. *GS* 21. Assistant Professor THOMAS.

A study of English phonetics, pronunciation, and the improvement of speech; primarily for secondary and elementary school teachers.

[***S 33. Regional and Historical Phonetics.** Credit two hours. Assistant Professor THOMAS. Not given in 1939; given in 1940.]

S 34. Principles of Phonetics. Credit two hours. Daily except Sat., 10. *GS* 21. Assistant Professor THOMAS.

A study of the phoneme, the aspirate, assimilation, and other aspects of sounds in combination. Open to students who are familiar with the basic facts of American phonetics.

[**S 36. Principles of Speech Correction.** Credit two hours. Assistant Professor THOMAS. Not given in 1939; given in 1941.]

****S 200. Theses and Special Problems.** Credit two or more hours. Hours to be arranged. In registering for this course the name of the professor with whom the work is to be done must be stated.

Required of regularly registered graduates working on theses. Open to other graduates prepared for independent study of special topics in public speaking, rhetoric, or phonetics.

For further information consult Professors THOMAS, WAGNER, or WICHELS.

Debate Round Table. Informal discussion of the methods and problems of conducting debate. For coaches and others interested. First meeting Th, 4. *GS* 264. Assistant Professor WAGNER.

Round Table for College Teachers of Public Speaking. First meeting F, 4. *GS* 234. Professor WICHELS.

Speech Clinic. For students working under the direction of the department. Assistant Professor THOMAS and Mrs. ARLT, GS 23 and 25. By appointment.

The degree of Master of Arts in Public Speaking and Speech Training is offered through a rotation of courses in a minimum of five summers. Candidates will take, or offer suitable equivalents for, S 1, S 2, and S 10; six hours in each of the following four divisions: Rhetoric and Public Speaking, S 14, S 20, S 21, S 22, S 28; Speech Improvement and Phonetics, S 32, S 33, S 34, S 36; Dramatic Production, S 41, S 42, S 43, S 45, S 66, S 90; electives in English, History, Government, Sociology, Psychology. In addition, each candidate will offer two hours in one of the three departmental divisions, and during the final summer will register in S 200 for the writing of a thesis or extended essay.

DRAMA AND THE THEATRE

Students may confer either with the departmental representatives in the Drill Hall, or with the individual instructors, who will be in their offices both on registration day and on the first day of instruction. For further information about registration, or advanced work, consult Mr. STANTON, GS 239, or Mr. DRUMMOND, GS 244.

Phonetics and Speech Training are listed above under Public Speaking and Speech.

S 41. Dramatic Production. Credit two hours. Daily except Sat., 10. *Stage Laboratory, Morse.* Dr. ALBRIGHT.

For upperclassmen and graduates. Theory of stage direction; fundamentals of theatrical mounting; survey of practical phases of production. Prerequisite for further graduate work in Dramatic Production.

S 42. Dramatic Interpretation and Acting. Credit two hours. M W F, 2-4. GS B. Assistant Professor CURVIN.

A practice course in oral interpretation, pantomime, acting, and group rehearsal.

[S 43. **Choosing and Directing School and Community Plays.** Credit two hours. Not given in 1939; given in 1941.]

S 44. Advanced Dramatic Interpretation. Credit two hours. By assignment. Professor DRUMMOND or Assistant Professor STANTON.

Specific assignments in the presentation and production of plays, for those who have been with the department for at least one summer and have taken S 42.

[S 45. **Stage Craft and Elementary Stage Design.** Credit two hours. Not given in 1939; given in 1940.]

S 45a. Stage Lighting. Credit two hours. Hours to be arranged. Assistant Professor STANTON.

Theory and technique of stage lighting; with laboratory practice in connection with the productions of the Summer Theatre.

Register with Mr. STANTON in GS 239.

[S 48. **History of the Theatre.** Credit two hours. Not given in 1939; given in 1940.]

[S 49. **Playwriting.** Credit two hours. Not given in 1939; given in 1940.]

S 66. Dramatic Art. Credit two hours. Daily except Sat., 12. GS 242. Professor DRUMMOND.

For upperclassmen and graduates having sufficient preparation for somewhat advanced work in the theory of the theatre. Lectures, readings, and reports.

S 90. Technical Theatre Practice. Credit two hours. Hours to be arranged. Open by consent of instructor. Mr. LEWIS. Register in GS 25.

Technical practice coordinated with the regular productions of the Summer Theatre; readings on the techniques involved.

S 95. Stage Make-up. Credit two hours. Hours to be arranged.

Laboratory in make-up coordinated with the productions of the Summer Theatre; readings and lectures on history of make-up, masks, and on period ornament and dressing.

Register with Associate Professor WILSON in GS 25.

****S 300. Special Problems and Theses.** Credit two or more hours. Hours to be arranged. On registering for this course the name of the professor with whom the work is to be taken must be stated.

Required of regularly registered graduates working on theses. Open to other graduates prepared for independent study of special topics in the field of drama and the theatre.

For further information consult Professor DRUMMOND or Assistant Professor STANTON.

Dramatics Round Tables. No credit.

Choosing School and Community Plays. First meeting Th, 4. GS 242.

Dr. ALBRIGHT.

Planning and Use of School Stages. First meeting W, 4. GS 242. Assistant Professor STANTON.

Playwriting on New York State Themes. First meeting F, 4. GS 242.

Mr. GARD.

Modern Drama. See English S 17.

Dramatic Literature. See English S 31.

Shakespeare. See English S 20.

The degree of Master of Arts in dramatic production is offered through a rotation of courses in a minimum of five summers. Candidates will take, or offer suitable equivalents for S 1, S 10, S 41; in Drama and Theatre six hours from S 45, S 45a, S 48, S 66; eight hours from S 42, S 44, S 45a, S 90, S 95; in Dramatic Literature, English S 17, English S 31; in Speech Improvement and Phonetics, six hours from S 32, S 33, S 34, S 36; in Rhetoric and Public Speaking, four hours; and during the final summer will register in S 300 for the writing of a thesis or extended essay based on one of the advanced courses.

SPANISH

***S 1. Course for Beginners.** Credit four hours. Entrance credit, one unit. Twice daily except Sat., 8 and 12. GS 277. Professor DALE.

The fundamentals of grammar. Reading and composition. Emphasis on Spanish as a spoken language.

****S 50. Supervision of Theses.** By appointment with Professor DALE. GS 271.

HISTORY, GOVERNMENT, ECONOMICS, AND SOCIOLOGY

ECONOMICS

The following courses are designed to meet the needs of three classes of students in the Summer Session: (1) those desiring regular college credit for general economics; (2) students with special interests in economic subjects; (3) students seeking broad preparation for the teaching of economics in the secondary schools. For the first group, Course S 1 covers the subject matter usually included under elementary economics. For Cornell students: Course S 1 satisfies the economics requirements in the College of Engineering and will also serve in lieu of Course 1 as a prerequisite for admission to various advanced courses in economics. Graduate students wishing to pursue special investigations will be afforded assistance by members of the Department of Economics who may be in residence in Ithaca during the summer.

***S 1. Introduction to Economics.** Credit four hours. Twice daily except Sat., 11 and 12. GS 264. Mr. CLARENBACH.

An introductory course dealing with the general functioning of a price economy. The pricing process, money and credit, and the forms of business organization will be examined in some detail.

S 33. Recent Developments in Economic Policy. Credit two hours. Daily except Sat., 9. GS 264. Professor HOMAN.

An examination of a selected body of economic legislation during the past decade with special reference to industrial monopoly, trade practices, public utilities, and agriculture.

A 81. **Economics of Enterprise.** Credit two hours. Daily except Sat., 9. *Warren 225.* Assistant Professor KENDRICK.

Intended for mature students in any field who desire an acquaintance with the fundamentals of economic theory.

S 82. **The National Income and its Distribution.** Credit two hours. Daily except Sat., 11. *GS 256.* Professor HOMAN.

An analytical study of the distributive process, statistical evidence of actual distribution, and the distributive consequences of actual and proposed legislative measures.

A 115. **Prices.** Credit three hours. Lectures daily except Sat., 8. *Warren 140.* Laboratory, W 1:40-4. *Warren Hall 140.* Assistant Professor HURD.

A study of price movements and factors affecting them. Emphasis is placed upon agricultural prices and their relation to other prices. Attention is given to index numbers, seasonal variations, cycles, secular trends, the history of prices, physical volume of production, and the relation of gold to prices. Fee for materials, \$2.

A 138. **Taxation.** Credit two hours. Lectures daily except Sat., 10. *Warren 225.* Assistant Professor KENDRICK.

A study of the principles and practices of public finance with emphasis on taxation. Among the topics examined are: the growth of public expenditures, the changing pattern of federal, state, and local taxation; general property, personal income, inheritance, business, commodity, and motor vehicle taxation; the incidence of taxation; relations among taxing units; and the problem of developing a system of taxation. Fee for materials, \$2.

*S 3A31. **First Course in Accounting.** Credit three hours. Daily except Sat., 11. Two practice periods per week to be arranged. *West Sibley 2.* Professor BANGS and Assistant Professor HANSELMAN.

Theory of debit and credit; the journal and ledger; the preparation of balance sheets and income statements; special journals; balance sheet analysis; financial mathematics—the use of compound interest tables; bond valuation; sinking funds.

GOVERNMENT

S 9. **International Relations.** Credit two hours. Daily except Sat., 8. *Boardman B.* Professor BRIGGS.

A survey of nationalism, internationalism and the racial, political, economic, and geographical factors in modern international relations.

S 16. **Contemporary American Foreign Policy.** Credit two hours. Daily except Sat., 10. *Boardman B.* Professor BRIGGS.

The foreign relations of the United States during the twentieth century; our Caribbean policy; post-war relations with Europe, Latin America, and the Far East. Neutrality, isolation, and international cooperation.

HISTORY

S 7. **England under the Tudors.** Credit two hours. Daily except Sat., 8. *Boardman D.* Professor MARCHAM.

A study of English civilization in the sixteenth century, with special attention to politics, government, and religion, the relationship between literature—particularly the drama—and the public life, and the development of the fine arts, notably architecture. In its treatment of politics, government, and religion the course will deal with the leading personalities of Tudor England.

S 9. **The British Empire in World Affairs, 1830 to the Present.** Credit two hours. Daily except Sat., 9. *Boardman D.* Professor MARCHAM.

The chief topics considered will be: British imperial policy in the nineteenth century; British imperialism and its rivals from 1880 to 1914; the British Empire and the World War; the British Empire and the League of Nations; the transi-

tion from dominion status to the commonwealth of nations; and the British Empire and its rivals since the World War.

*S 15. **American History to 1850.** Credit two hours. Daily except Sat., 8. *Boardman E.* Professor GATES.

A general survey from the American Revolution to the Compromise of 1850.

S 19. **History of the West.** Credit two hours. Daily except Sat., 10. *Boardman D.* Professor GATES.

A history of the westward movement with special attention to settlement, land and agricultural problems, the removal of Indians, transportation, sectionalism, and frontier democracy.

S 23. **Intellectual Development in Western Europe during the Middle Ages.** Credit two hours. Daily except Sat., 8. *Boardman C.* Professor STEPHENSON.

An introductory course on mediaeval thought, literature, and education, beginning with the later Roman period and coming down to about the close of the thirteenth century. Among the topics considered will be the following: Carolingian schools, the cultural revival of the twelfth century, the growth of the universities, vernacular prose and poetry, rationalism and mysticism, scholastics and humanists, science and magic, heresy and witchcraft.

S 41. **French Revolution.** Credit two hours. Daily except Sat., 11. *Boardman C.* Assistant Professor ANDERSON.

Traces background of the revolution in the Old Regime. Special emphasis on the constructive achievements of the early revolutionary period.

*S 47. **Europe, 1870-1939.** Credit two hours. Daily except Sat., 10. *Boardman E.* Dr. CURTISS.

A general survey of Europe before the World War, a brief study of the war, followed by a more detailed study of post-war Europe, with special stress on the rise of new economic and political forces.

S 48. **History of Modern Russia.** Credit two hours. Daily except Sat., 12. *Boardman E.* Dr. CURTISS.

A study of the Russian Empire from Peter the Great to the Revolution of 1917, as well as a careful investigation of the developments under the Soviet state.

SOCIOLOGY: RURAL SOCIAL ORGANIZATION

*A 1. **General Sociology.** Credit two hours. Daily except Sat., 8. GS 225. Assistant Professor BROWN.

The analysis and utilization of concepts and principles of sociology, with special emphasis on institutions, social structure, social processes, and social change.

A 111. **Rural Community Organization.** Credit two hours. Daily except Sat., 8. *Warren 302.* Extension Assistant Professor POLSON.

A consideration of the structure and functioning of rural community organizations; the organization of the rural community; and a review of group work techniques, such as local leadership development, program planning, use of group activities for informal teaching, the use of committees, and interorganization cooperation. A course for extension workers and school teachers.

A 121. **The Family.** Credit two hours. Daily except Sat., 11. GS 225. Assistant Professor BROWN.

An analysis of marriage and the family as basic aspects of culture and social organization with emphasis on contemporary trends and problems.

A 122. **Social Problems.** Credit two hours. Daily except Sat., 9. *Warren 340.* Extension Assistant Professor POLSON.

A study of the maladjustments and problems of society, such as crime, poverty, sickness, old age, accident, degeneracy, insanity, class and racial struggles, and consideration of methods by which society attempts to deal with these problems.

A 124. **Social Case Work.** Credit two hours. Daily except Sat., 10. *Warren 302.* Mr. BEE.

The analysis of social case method, presenting typical problems in social work. The psychological growth process and the functioning of personality considered in a context of social relations. The role of the modern family in personal dis-

organization and rehabilitation. The social worker and the social agency; problems and opportunities in understanding and working with the community.

A 131. **The Social Psychology of Rural Life.** Credit two hours. Daily except Sat., 11. *Warren* 340. Mr. BEE.

Emphasis in this course will be on developing an integrated social-psychological theory of the development, organization, and function of personality. Attention will be given to the development of the self, social attitudes, public opinion, and propaganda. Personal and collective behavior in rural society will be the primary consideration in selecting a variety of social situations for analysis.

EDUCATION

EDUCATION: RURAL EDUCATION

THE GRADUATE SCHOOL OF EDUCATION

The GRADUATE SCHOOL OF EDUCATION, by integrating the work in the Departments of Education and Rural Education, offers courses that prepare for the more important types of teaching, supervisory, and administrative positions.

TYPES OF PROFESSIONAL PROGRAMS LEADING TO STATE CERTIFICATION

For several types of professional workers, programs have been so planned that it is possible for the student to secure a Master's degree at the same time the requirements for a state certificate in New York or elsewhere are met. Among the professional positions for which programs have been prepared are these:

1. Teacher of English, social studies, science or any other academic subject usually taught in a secondary school.
2. Teacher of agriculture, homemaking, or industrial education.
3. Supervisor of agriculture, homemaking, or industrial education.
4. Teacher of industrial arts.
5. Supervisor of industrial arts.
6. Guidance counsellor.
7. Supervisor of elementary schools.
8. Principal of an elementary or a secondary school.
9. Principal of a vocational or a technical high school.
10. Director of vocational education.
11. Supervising principal of a central, a consolidated, or a small village school.
12. Superintendent of a large village or city school system.
13. District superintendent, county superintendent or similar leader in rural education.

For information regarding any of these programs the student who is already matriculated in the Graduate School of Cornell University should consult the Chairman of his Special Committee. Others should write to the Director of the Graduate School of Education.

Opportunities for specialization in the various phases of Education are, of course, offered for those not concerned with certification.

SPECIAL CONFERENCES

From July 3 through July 14 a two-week **Study Conference for City Supervisors of Home Economics** will again be conducted by the Graduate School of Education and the College of Home Economics at Cornell, in cooperation with the New York State Education Department and the Home Economics Education Service of the Office of Education, Department of the Interior. The Study Conference program will be available on or after April 1.

The **Sixth Annual Summer Session Conference** will be held August 3 to 5, under the joint auspices of the Graduate School of Education and the New York State Education Department. This conference continues with the general theme, Facing the Problems of Youth, begun last year. The specific subject for the 1939 conference is "Youth and Occupational Adjustment." A detailed program will be issued about May 15.

EDUCATIONAL PSYCHOLOGY AND MEASUREMENT

****S 7. Mental Measurements.** Credit two or three hours. With consent of the instructor, this course may be taken without observations for two hours credit. Daily except Sat., 9. Observation hours to be arranged. *GS* 142. Professor FREEMAN.

Concepts of intelligence; individual and group tests of intelligence; principles underlying their construction and interpretation; use of tests in schools and other fields. Lectures, readings, and observations of individual testing.

****A 12. Psychology of Exceptional Children.** Credit two hours. Daily except Sat., 11. *GS* 242. Professor FREEMAN.

Designed to give a scientific understanding of children who deviate from the usual: the gifted, the feeble-minded, the delinquent, those having special abilities or disabilities, those having personality defects, and those having sensory and physical handicaps. Lectures, readings, and case studies. Students who have not had or are not now taking a course in mental measurements may be admitted only with approval of the instructor.

***A 111. Psychology for Students of Education.** Credit two hours. Daily except Sat., 11. *E. Roberts* 223. Dr. GARDNER.

A point of view in psychology for students of education. The nature of man with emphasis on the tendencies to behavior basic to learning; the learning process; individual differences.

***A 116. Child Psychology.** Credit two hours. Daily except Sat., 10. *Warren* 140. Professor KRUSE.

Students who have not had a course in educational psychology admitted only on approval of instructor.

****A 212. Psychology of Learning.** Credit two hours. M W F 7:30-8:50 a.m. *Warren* 225. Professor KRUSE.

For students who have had at least an elementary course in psychology and want to extend their study of the learning process.

A 215. Psychology of Adolescence. Credit two hours. Daily except Sat., 10. *Warren* 125. Professor WINSOR.

A study of the behavior of children during the adolescent stage of development. An approved course in measurement is prerequisite.

****A 251. Educational Measurement.** Credit two hours. Daily except Sat., 8. *Warren* 101. Assistant Professor BAYNE.

The use and interpretation of tests by teachers and school officers as aids in the improvement of instruction.

EDUCATIONAL METHOD

S 30. Problems in the Teaching of Social Studies. Credit two hours. Daily except Sat., 12. *GS* 225. Assistant Professor ANDERSON.

This course plans special emphasis on the organization of materials for teaching purposes. Among the topics treated are aims and values, criteria for selecting textbooks, directed study procedures, recitation techniques, motivation of extensive reading, and tests and measurements.

S 33. The Teaching of English in Secondary Schools. (English S 33.) Credit two hours. Daily except Sat., 12. *GS* 156. Professor THORPE.

A study of the outstanding problems in the teaching of English composition, literature, and language. Consideration will be given to aims, relative values of materials, organization of the courses, specific methods, and tests. Special topics will include motivation, the articulation of subject matter, the adjustment of aims and practice to current educational theory, and the significance for classroom procedure of recent experiments and studies in English.

***A 122a. Observation of Child Activity Education.** No credit. Daily except Sat., 9-11:30, and group conferences each Thursday from 2-3:30. *Comstock* 17 and 245. Dr. RUEGSEGER, Professor FERRISS, Professor MOORE, Miss HULTZ, Miss KNAPP.

Two teachers will give demonstration work in grades one and two, and five and six during the Summer Session period. These demonstrations will illustrate two conceptions of an activity program in the elementary school. So far as facilities permit, Summer Session students will be allowed to observe these classes. The group conferences will be held for the purpose of discussing and interpreting the teaching observed.

A 127. Observational Aids. Credit two hours for lectures or three hours for lectures and laboratory. Lectures, daily except Sat., 10. *Fernow* 14. Laboratory, T, 1:40-4. *Fernow* 14. Assistant Professor JOHNSON.

A course dealing with methods for collecting, preparing, and evaluating materials available as visual or other aids, together with a study of techniques for using such aids effectively. Special emphasis will be given to subjects commonly taught in elementary and secondary schools, but students will be assisted in applying the methods and techniques to special fields. The laboratory consists of practical exercises dealing with the preparation and use of observational aids.

****A 128. The Teaching of Natural History in the Field.** Credit three hours. Lecture, M, 12. *Fernow* 8. Field work F, 1:40 p.m. to Sat., 8 p.m. Professors PALMER, WRIGHT, ALLEN, PETRY, VON ENGELN, WHETZEL, and MOTTLEY; Dr. KELLOGG, Miss GORDON, and Mr. TRAINER.

This course is designed primarily to acquaint experienced science teachers with methods of field studies suitable for use in public school teaching and in teacher-training institutions. Trips will combine a variety of ecological sites with the observation of methods used by leaders in botany, zoology, general ecology, entomology, forestry, astronomy, and field physical science. Practice will be given in field teaching under supervision. Students will live in the field from Friday noon to Saturday night. The privilege of advance registration is extended. Enrollment is limited to twenty. Membership of the class will be fixed tentatively June 1. Provision can be made for all women students to live in the same house if registration is made before June 1. Applicants should file with Professor E. L. Palmer detailed records of their teaching experience and training in science. Students will furnish their own bedding, pup tents, or sleeping bags. Meals and transportation will be supplied at cost, which for the six weeks will be \$20. This is to be paid in advance. Open only to those taking work for credit.

A 129. Teaching Adaptations for the Atypical Child. Credit two hours. Daily except Sat., 10. *E. Roberts* 223. Dr. GARDNER.

Consideration, with demonstrations, of special techniques of teaching adapted to the needs of atypical children.

A 134a. Special Education for Teachers of Out-of-School Youth and Adults. Credit two hours. Daily except Sat., 9. *Warren* 325. Assistant Professor HOSKINS.

Designed for teachers of vocational agriculture and other leaders of older youth and adults in rural areas. The consideration of the development, trends, and objectives of education for out-of-school groups. For 1939 special adult groups will be stressed.

A 134b. Adult Homemaking Education. (Home Economics E 120s. Leadership in Home Economics.) Credit three hours. For extension workers, home economics teachers, and others interested in leadership in homemaking education. Discussion, M W F, 10-12. *Martha Van Rensselaer* 124. Miss HENDERSON.

***A 142a. Organization and Method of Teaching Industrial Arts.** Credit two hours. Daily except Sat., 8. *Warren* 325.

Designed for students of vocational agriculture. Deals with points of view, aims and objectives, organization of materials and courses for small high schools; also with related subject matter, the management of the shop, including shop equipment, shop procedures, and State Education Department regulations.

A 142x. Project Development Laboratory in Industrial Arts. Credit two hours. Enrollment limited to 20. Lectures, T Th, 1:30. *E. Roberts* 223. Laboratory, M W F, 1:30-4. *Senior High School Laboratory* 13. Mr. EBELING.

Study of the development of projects for use in industrial arts instruction. Emphasis will be placed on the creative aspects of project development. Opportunity will be provided for designing new projects and for making up sample projects in the shop. Laboratory fee, \$2.

A 143. **The Organization and Teaching of Technical Subjects.** Credit two hours for each unit. Mr. KULP.

b. Organization of content into units, topics, and lessons; preparation of drawings, lesson plans, instruction sheets, and other aids to instruction. Each student should provide himself with drawing equipment. Daily except Sat., 11. Warren B40. Mr. VOSS.

c. Special methods applicable to teaching technical and related subjects in drawing, shop, laboratory, and classroom. Daily except Sat., 9. *Rockefeller* 106. Mr. GRAY.

A 209. **The Nature Movement and Its Makers. Credit two hours. Daily except Sat., 9. *Fernow* 8. Professor PALMER.

A survey of the present programs in elementary science and nature study interpreted in terms of the programs and leadership of the past with an indication of possible future developments.

A 226. **The Teaching of General Science in Secondary Schools. Credit two hours. Daily except Sat., 8. *Fernow* 14. Assistant Professor JOHNSON.

The aims and objectives of general science developed as bases for the selection and organization of subject matter suitable for junior and senior high schools. A study and demonstration of effective plans for the presentation of science lessons in secondary schools, together with consideration of problems associated with materials and equipment.

A 236. **Creative Procedures in the Teaching of Home Economics in the Secondary School.** Credit two hours. Daily except Sat., 8. Warren B40. Professor BINZEL.

Designed to develop creative ideals and procedures for appraising, building, and teaching a home economics program for school and community.

*A 250. **Seminar in Agricultural Education.** Credit two hours. Daily except Sat., 8. *Stone* 309. Assistant Professor SMITH.

Open only to experienced teachers with graduate standing. Studies in the development of criteria for selection, adaptation, and evaluation of reference and illustrative materials for use in teaching. Each member of the class will be expected to make specific applications to problems.

ADMINISTRATION, SUPERVISION, AND CURRICULUM

S 5. **High School Administration.** Credit two hours. Daily except Sat., 10. *GS* 225. Dr. BALDWIN.

Problems in the administration of the individual school as a unit, in contrast to the administration of an entire school system. Particular attention will be given to village and central rural schools.

S 10. **Problems in High School Administration. Credit two hours. T Th, 1:40-4. *GS* 221. Professor JORDAN.

An advanced course in high school administration, dealing with problems peculiar to the administration of secondary schools. The course presupposes preliminary courses including administration, curriculum, and supervision. The materials are arranged in a three-year cycle so as to give graduate students a continuous three-year course. The cycle is: I. Organization and Management of the Building, 1940; II. The Teaching Staff, 1941; III. The Pupil and the Public, 1939.

Students may enroll in any unit of this course; and particular attention is given to the needs of the group. Permission of the instructor must be obtained before enrollment. Papers and reports required.

S 11. **Extra-Classroom Activities.** Credit two hours. Daily except Sat., 8. *GS* 264. Professor JORDAN.

A study of the place extra-classroom activities should assume in the school program. General principles involved, with special attention to athletics, dra-

metics, publications, school finance, music, debate, and school clubs. Individual problems of the class will have special attention.

A 23. **The Administration of the Elementary School.** Credit two hours. Daily except Sat., 11. *Warren 125.* Dr. RUEGSEGER.

A consideration of problems in the administration of an elementary school. Intended primarily for persons seeking an elementary principal's certificate.

A 169a. **Administrative Problems of the Homemaking Teacher.** Credit two hours. Daily except Sat., 10. *Warren B40.* Professor BINZEL.

Designed to help teachers solve major administrative and organization problems of the homemaking program in school and community. Consideration will be given to the teacher's responsibility to local and state administration; the state program of Home Economics; adjustments of courses to individual situations; the budget; location and types of centers; the school lunch; methods of securing the interest of the community in the Home Economics program.

*A 146a. **Problems and Materials in Distributive Education.** Credit two hours. Daily except Sat., 8. *Plant Science 141.* Mr. DAVISON.

Problems in the organization, development, and administration of courses in distributive occupational subjects offered under the provisions of the George-Deen Act, including objectives, types of courses, and materials available. Primarily for directors of business and vocational education, department chairmen, coordinators, teachers of merchandising courses and persons employed in the field of distribution who expect to teach distributive occupational subjects.

*A 146b. **Introduction to Retailing.** Credit two hours. Daily except Sat., 11. *E. Roberts 222.* Mr. DAVISON.

An introduction to the broad field of retailing, including a survey of the different types and kinds of retailing outlets and some of the current problems and trends in their organization, management, and operation. Primarily for present or prospective teachers of courses in salesmanship, retail selling, merchandising, and other distributive education courses.

A 242a. **Seminar in Industrial Arts Education. Credit two hours. Daily except Sat., 10. *Warren 101.* Mr. EBELING.

A study of recent researches in the field of industrial arts education, and general studies in education which have implications concerning industrial arts; techniques of research.

A 243. **Problems in the Administration of Industrial and Technical Education. Credit two hours. Daily except Sat., 11. *Plant Science 141.* Professor EMERSON.

A course in school administration dealing with the responsibilities of the principal and administrative assistants in industrial and technical high schools and of the city director of vocational education.

A 243a. **Supervision of Industrial and Technical Education. Credit two hours. Daily except Sat., 10. *Rockefeller 106.* Mr. GRAY.

Principles and practices in the improvement of instruction in all phases of industrial and technical high school courses. This course is correlated with 143c.

A 243b. **Seminar in Vocational Industrial and Technical Education. Credit two hours. Daily except Sat., 9. *Warren 101.* Professor EMERSON.

A study of research techniques, together with critical study of researches in vocational industrial and technical education, and recent studies in the field of general educational problems which have bearing on industrial and technical education.

A 249. **Seminar in Home Economics Education. Credit two hours for each sub-unit. Designed primarily for graduate students majoring or minoring in Home Economics Education, who may take two, four, or six credit hours.

a. Curriculum development in Home Economics. M T W Th, 11-12:30. *Martha Van Rennselaer 121.* Acting Professor THURSTON.

Course 276 or its equivalent must either precede or accompany this course.

b. Service and research studies. M T W Th, 7:30-8:50 a.m. *E. Roberts 223.* Acting Professor THURSTON.

(c. Evaluation of Home Economics Education. Given in 1940.)

****A 261. The Administration of Rural Schools.** Credit two hours. Daily except Sat., 8. *Warren 125.* Professor BUTTERWORTH.

A general course in school administration dealing especially with the problems of village and central schools. Individual attention will be given to those who are working in larger schools.

****A 262a. School Finance.** Credit two hours. Daily except Sat., 8. *Plant Science 143.* Dr. BALDWIN.

Typical problems: how local school funds are levied, collected, and disbursed; cost accounting; budget making; bonding; sources of state funds and their distribution. The discussions will be based upon actual problems; prospective members of the class are urged, therefore, to bring with them financial data regarding their schools.

****S 263. Procedures and Techniques in Supervision.** Credit two hours. Daily except Sat., 11. *Warren 140.* Professor MOORE.

Designed for superintendents, supervisors, and principals. Inexperienced students admitted only by permission. A consideration of the nature and purpose of supervision; the improvement of the learning-teaching process; skill in observations; analysis of methods; relationships between general and specific objectives; selection, analysis, and organization of subject matter; measuring and testing results; assisting teachers in professional growth.

****A 266. The Supervision of the Elementary School.** Credit two hours. Daily except Sat., 9. *Warren 140.* Professor MOORE.

Designed for supervisors, elementary school principals, and superintendents. A consideration of important research studies which have a direct bearing upon the teaching and supervision of the elementary school subjects.

****A 267c. Vocational Education in the Public Schools.** Credit two hours. Daily except Sat., 10. *Warren 340.* Professor STEWART, assisted by Professors BINZEL and EMERSON, and by representatives of the State Department of Education.

Open to graduate students with teaching experience. Designed primarily for administrative officers and teachers in the general and vocational fields, who desire a basic understanding of the vocational program; the place of the industrial, home economic, agricultural, and distributive phases of vocational education in a comprehensive program of public education; the more important problems involved in the organization and integration of vocational courses.

****S 276. Principles of Curriculum Building.** Credit two hours. Daily except Sat., 9. *Plant Science 143.* Professor FERRISS.

A consideration of major problems, principles, and techniques in determining educational objectives and curriculum content and organization in elementary and secondary schools in the light of modern educational theory and practice. Selected examples of recent curriculums and courses of study will be critically examined.

****A 276b. Practicum in the Secondary School Curriculum.** Credit two hours. Daily except Sat., 1:45-3:15. *Plant Science 107.* Professor FERRISS.

Designed to give students insight into the more recent practices and techniques of constructing curriculums and courses of study on the secondary school levels. The major emphasis of the course will be given to actual practice in developing courses of study and units of work in different fields of study with opportunity for consultation with specialists in those fields. Those having curriculum materials pertaining to a desired field of work for the summer should bring them. Open only to students who have taken course 276 or its equivalent.

****A 277. Vocational Courses of Study in Agriculture.** Credit two hours. Daily except Sat., 11. *Warren 325.* Assistant Professor HOSKINS.

Ordinarily not open to students who have not had or are not taking Rural Education 276 or 281.

An evaluation of curriculum studies in agricultural education as a basis for the reconstruction of vocational courses in agriculture for secondary schools; relationships to the long-time supervised practice programs.

GUIDANCE

A 28. **Introduction to Educational and Vocational Guidance.** Credit two hours. Daily except Sat., 11. *Warren* 225. Dr. HANNA.

A study of the principles and methods of guidance, with special emphasis upon educational and vocational guidance in secondary schools; procedures and techniques in the adjustment of pupils to educational and vocational surroundings; guidance functions of teachers; organizing the school on a guidance basis; community resources and their use in the guidance program.

A 31. **Studies in Educational and Occupational Opportunities.** Credit four hours. Daily except Sat., 1:30-3:00. *GS* 225. Mr. VOSS.

Prerequisite, A 28 or equivalent. Organization of educational and occupational information for use in counseling with students; occupational trends; opportunities and requirements of occupations; sources of information; procedures and techniques in presenting occupational information. Students should arrange their schedules to permit field visits on Tuesday and Thursday afternoons to representative industries and other occupations in Ithaca and nearby cities.

A 32. **Practicum in Guidance. Credit two hours. Daily except Sat., 9. *E. Roberts* 223. Dr. HANNA.

A study of the practical aspects of guidance with special attention to counseling methods and procedures; the use of tests, cumulative records, and other means of securing information about counselees; the use of occupational and educational information in the counseling situation; case studies.

A 217. **Use and Interpretation of Tests in Guidance. Credit two hours. Daily except Sat., 8. *Warren* 340. Professor WINSOR.

This course deals with the development, use, interpretation, and significance of psychological measuring devices as a basis for analyzing the capacities, interests, and abilities of individuals seeking vocational guidance. A course in measurement is prerequisite.

PRINCIPLES AND HISTORY OF EDUCATION

S 14. **History of Educational Thought.** Credit two hours. Daily except Sat., 8. *GS* 142. Dr. HANS.

A survey of the development of educational thought, based on a study of outstanding systems of educational ideas from the Greeks to modern times. Reading of selected source material.

A 295. **Comparative Education. Credit two hours. Daily except Sat., 10. *Warren* 325. Dr. HANS.

An introduction to a comparative study of the principal problems of education, based on a discussion of the educational institutions, tendencies, and their underlying ideas in England, France, Germany, and Russia.

RESEARCH

B 300. **Research. Credit as arranged. Members of the staff of the Graduate School of Education.

Students working on theses or other research projects may register for this course. The staff members concerned must be consulted before registration.

GENERAL

For Teachers Courses in subjects not listed above, see the index.

A special program of Summer Session courses has been outlined for teachers of **General Science, Biological Sciences, and Physical Sciences.** This program, when taken by qualified candidates, requires five Summer Sessions and leads to the Master's degree, Plan B. Teachers interested in this program are invited to correspond with the **DIRECTOR OF THE SUMMER SESSION** to secure additional information.

HEALTH EDUCATION

S 1. The School Health Program. Credit two hours. Daily except Sat., 8. *Stimson.* Dr. SMILEY.

Problems in the organization, administration, and operation of a modern school health program including: healthful school living; medical and dental supervision; health instruction; physical training.

S 2. Mental and Physical Health Problems of the School Child. Credit two hours. Daily except Sat., 9. *Stimson.* Dr. EVANS.

A discussion of the common mental and physical disorders of the school child with suggestions for prevention and management.

S 3. Mental Hygiene. Credit two hours. Daily except Sat., 10. *Stimson.* Dr. STELLE.

The human being considered as a psychobiologic unit in a complex environment. Discussion of (1) general personality structure; (2) maladjustment factors functioning at different ages from infancy through life; (3) the more common maladjustment symptoms and mental illnesses and their prevention.

PHYSICAL EDUCATION

***S 13. Body Mechanics.** Credit one hour. Daily except Sat., 12. *Sage Gymnasium.* Miss THORIN.

This course is planned primarily for development of body poise and carriage. Special attention is paid to weight problems and correction of postural faults with the aim of establishing intelligent self-direction in health practices. Emphasis is placed upon the development of physical response to aspects of rhythm.

***S 14. Folk Dancing.** Credit one hour. Daily except Sat., 2:30. *Sage Gymnasium.* Miss THORIN.

Representative folk dances from all countries, ranging from simple dances to dances of moderate difficulty and adopted to school and recreational groups. Fundamental steps and routines of tap dancing.

***S 15a. Modern Dance Technique.** For beginners. Credit one hour. Daily except Sat., 11. *Old Armory.* Miss ATHERTON.

This course is intended to orient the student in fundamental movement techniques. It will stress a direct approach to swinging, sustained, and percussive movement, and will present an analysis of the elements of rhythm and musical pattern.

***S 15b. Modern Dance Technique.** Advanced course. Credit one hour. Daily except Sat., 12. *Old Armory.* Miss ATHERTON.

This course will present basic techniques of movement as the medium of the dance. It will include application of swinging, sustained, and percussive movement with patterns of contrasting movement. Open only to students who have had the Beginners course in Modern Dance Technique or its equivalent.

***S 16. Teaching Methods in Aquatics.** Credit one hour. M W F, 3. *Old Armory.* Mr. LITTLE.

Tested methods of teaching beginners to swim and dive. Coaching methods in competitive swimming. American Red Cross life saving. Theory and practice.

***S 16a. Swimming.** No credit. Hours to be arranged. *Old Armory Pool.* Mr. LITTLE.

Instruction in beginning, intermediate, and advanced swimming and diving. A special fee of ten dollars is charged for 18 hours of class instruction. Individual instruction (one or two persons to a group) one dollar per lesson per person.

***S 18. Private Instruction in Tennis.** (Men and Women). No credit. Hours to be arranged. *Sage Courts.* Mr. MURRAY.

A special fee is charged, ten dollars for ten lessons.

***S 18a. Tennis.** No credit. M W F, 4. *Risley Courts.* Miss THORIN.

Class instruction for those wishing to learn the correct form in tennis. Advanced technique and strategy for those who play the fundamental strokes correctly.

*S 19. **Badminton.** No credit. T Th, 4. *Risley Courts.* Miss THORIN.
Class instruction in badminton.

*S 21. **Modern Dance Composition: Survey and Criticism of Dance.** Credit two hours. W, 3. *Sage Gymnasium*; T Th, 3-5. *Old Armory.* Miss ATHERTON.

Open to students taking one of the courses in Modern Dance Technique, or, by permission of the instructor, to students who have had equivalent training or experience.

Study in Composition will present an approach to Dance through the use of technical devices viewed from the aspects of force, space, and time; and an analysis of simple forms. Attention will be focused upon the use of music accompaniment in the Dance. Survey and Criticism of Dance will present a brief historical background of Dance as it has appeared under social conditions of former times; and a critical study of Dance as it exists today.

The following recreational activities are organized during the Summer Session. Members of the faculty as well as all students are cordially invited to participate, and are urged to consult the bulletin board in the main lobby of Willard Straight Hall, and the weekly calendar for announcements.

Recreational Folk Dancing. Arranged by the Department of Physical Education and Willard Straight Hall. For men and women among the faculty and students. W, 5. *Recreation Room, Willard Straight Hall*; Th, 5. *Risley Court.*

Instruction in Social Dancing. A recreational activity arranged by the Department of Physical Education and Willard Straight Hall. T F, 7:15 p.m., *Recreation Room, Willard Straight Hall.* Fee, \$1.50.

Lectures on body mechanics and sports, such as swimming, canoeing, sailing, golf, archery, and walking, and their techniques, illustrated by moving pictures, will be given each week. No credit. Hour and place will be announced in the Summer Session Calendar. Miss THORIN.

Tennis and Badminton Tournaments.

Hikes and Picnics.

PSYCHOLOGY AND BIOLOGICAL SCIENCES

BACTERIOLOGY

A 1. **General Bacteriology.** Credit two or four hours. Lectures, daily except Sat., 1:40. Laboratory, daily except Sat., 2:30-4:30. *Dairy 119.* Professor STARK and Mrs. STARK.

An introductory course giving a general survey of the field of bacteriology, together with the fundamentals essential to further work in the subject. The morphology, physiology, and classification of bacteria; the culture of micro-organisms, simple and differential staining, and general bacteriological technique; the bacteriology of soil, air, water, sewage, milk, and foods; the principles of immunity and the microbiology of disease. Laboratory fee, \$10, for those seeking four credit hours.

A 220. **Special Problems.** Credit and hours by arrangement. Professors SHERMAN and STARK.

Special problems in bacteriology may be elected by qualified students with the permission of the instructors.

BIOLOGY

*A 1. **General Biology.** Credit three hours. Lectures and discussions with materials at hand, daily except Sat., 11-1. *Roberts 392.* Assistant Professor MOTTLEY.

Designed for the general student seeking a cultural background as well as for the prospective teacher; deals with the nature of life, life processes, and the activities of living organisms; covers the principles of nutrition, growth, reproduction, and behavior of typical forms of plant and animal life, including man. Laboratory fee, \$2.50.

BOTANY

***S 1a. General Botany—Anatomy and Physiology.** Credit three hours. Equivalent to Botany 1, first term. Lectures, daily except Sat., 10. Laboratory and conferences, daily except Sat., 11–12:30. *Plant Science* 141, 262. Professor PETRY and Mr. PALMATIER.

The structures and life processes of the higher plants are examined in detail, with considerable attention to information necessary for more advanced or practical work with plants. Students taking this course may attend the field trips offered in connection with Botany A 1b. Laboratory fee, \$3.50.

***A 1b. General Botany—Morphology and Taxonomy.** Credit three hours. Equivalent to Botany 1, second term. May be taken in conjunction with Botany S 1a, or independently. Lectures, daily except Sat., 2. Laboratory, daily except Sat., 3–4:30. Three half-day field trips on Saturdays to be arranged. *Plant Science* 141, 242. Mr. FORD.

Representatives of the principal groups of plants are studied with a view to acquainting the student with the plant kingdom as a whole. The principal families of ferns and flowering plants are examined and practice in identification is given.

The field work is intended to afford to teachers and others first-hand knowledge of the commoner plants of all the great groups. Facilities for collecting plant materials for teaching or other purposes will be provided. Laboratory fee, \$3.50.

A 8. Morphology of Vascular Plants. Credit four hours. Prerequisite, course A 1 or an equivalent and permission to register. Laboratory, M T Th F, 8–12. Hours for lectures to be arranged within these periods. *Plant Science* 228. Professor EAMES.

An advanced course in the comparative morphology and phylogeny of vascular plants. Laboratory fee, \$5.

A 13. Trees and Shrubs. Credit two hours. Lectures and laboratory, T Th, 1:40–5:30. Registration limited to twenty students; permission to register must be obtained from the instructor before registration is made. *Plant Science* 353. Professor WILSON.

Intended for those who wish to know the woody plants in the field. The aim is to familiarize the student with the trees and shrubs of Central New York and to teach the main facts of structure, growth, habit, and distribution concerning them. An all day trip to the McLean Wild Life Preserve will be taken on Saturday, July 30. Other trips will be arranged. Laboratory fee, \$1.50; deposit, \$3.

A 31. Plant Physiology. Credit four hours. Prerequisite, course A 1 or its equivalent and elementary chemistry. Lectures, daily except Sat., 12. *Plant Science* 141. Laboratory, T W Th F, 9–12. *Plant Science* 227. Professor O. F. CURTIS.

This course is designed to acquaint the student with the important life processes of plants. Topics such as water-relations, photosynthesis, translocation, digestion, respiration, mineral nutrition, and growth relations are studied in some detail and particular emphasis is placed both in laboratory and in classroom on discussion of the principles and their applications to growing plants. Laboratory fee, \$4; deposit, \$3.

A 117. Taxonomy of Vascular Plants. Credit four hours. Prerequisite, course A 1 or its equivalent. Lectures, M T W Th, 2. Laboratory, M T W Th, 3–6, F, 2–5. Several all-day field trips will be arranged. *Plant Science* 211. Professor WIEGAND.

A study of the kinds of seed plants and ferns; their classification into genera, families, and orders; and field work on the local flora. Emphasis will be placed on wild plants, but the more common cultivated plants will have some attention. The course is planned to follow course A 1 and to furnish an introduction to the knowledge of field botany and to the classification of the higher plants, in preparation for special work in various departments and as an aid in teaching. Instruction will be given in herbarium methods. Laboratory fee, \$4; deposit, \$5.

A 121. Comparative Morphology of Fungi. Credit four hours. Equivalent to Plant Pathology 121. Prerequisite, course in general botany and permission to register. Lectures, M W F, 9. *Plant Science* 336. Laboratory, fifteen actual hours a week, by arrangement. *Plant Science* 329. Professor FITZPATRICK.

An elementary synoptical course, designed to acquaint the student with the general field of mycology. Emphasis is placed on morphology and phylogeny, rather than on taxonomy, but abundant opportunity is given for field work. Correspondence in advance of arrival in Ithaca is urged. Laboratory fee, \$6; deposit, \$5.

A 222. Mycology. Credit four hours. Prerequisite, a course in general botany, course A 121, and permission to register. Lectures or conferences, T Th, 9. Laboratory, fifteen actual hours a week, by arrangement. *Plant Science* 329. Professor FITZPATRICK.

An advanced course designed for students who wish to specialize in botany or plant pathology. An intensive study of the morphology, taxonomy, cytology, and phylogeny of the fungi. Emphasis is placed on field work, with extensive practice in determination of material.

The groups of the fungi are studied in successive summers, usually in the following order: (1) Phycomycetes, (2) Ascomycetes, (3) Basidiomycetes, (4) Uredinales, Ustilaginales, and Fungi Imperfecti. By repeating the course, the student may obtain in four summers the equivalent of Plant Pathology 221 and Plant Pathology 222. He may begin with any one of the four groups and need not take them in unbroken sequence. The needs of the prospective class will determine the group selected for study during the coming summer. Correspondence as long as possible in advance of arrival in Ithaca is urged. Laboratory fee, \$6; deposit, \$5.

A 145. Special Problems with Plants. Credit two or more hours. Hours to be arranged. In registering for this course the name of the professor with whom the work is to be taken must be stated.

Students sufficiently prepared may arrange for the study of some problem or special topic. Such work may lie in the fields of general or taxonomic botany, anatomy, comparative morphology, mycology, cytology, plant physiology, paleobotany, plant pathology, or genetics. A member of the staff must supervise the work.

ENTOMOLOGY

A 12. General Entomology. Credit three hours. Prerequisite, Biology 1 or Zoology 1 or its equivalent. Lectures, daily except Sat., 10. *Comstock* 200. Practical exercises, M W F, 1:40-4. *Comstock* 200. Professor MATHESON.

This course includes lectures and demonstrations on the characteristics of the orders and families of insects with the study of their habits, life-histories, and relations to other animals and to plants. The laboratory work consists of the study of the structure, ecology, metamorphosis, and classification of insects. Field trips to study insects in their natural habitats are an important feature. Each student is required to collect and prepare a typical collection of insects. Opportunities are given for the rearing of insects in the Insectary, and special work is offered to suit the needs of individual students. Textbook: *Comstock's Manual for the Study of Insects* (1936 edition). Equipment: a good hand lens, several insect cases, insect pins, and labels. These can all be purchased in Ithaca. Laboratory fee, \$2.50.

A 16. The Ecology of Insects. Credit two hours. Prerequisite, Biology 1 or Zoology 1, and Entomology 12, or equivalents. Lectures, T Th S, 8. *Comstock* 145. Laboratory studies and field trips, T Th, 1:40-4. Professor PALM.

A general study of insects in relation to their environment. Attention will be given to life history studies in the field and insectary; the role that insects play in different natural associations; the relations between structure, instinct, habitat, and ways of living. Photographing insects in natural color in the field and laboratory is included as part of the course.

A 21. **Elementary Morphology of Insects.** Credit three hours. Twenty actual hours a week, by appointment. *Comstock* 270. Professor READIO.

A study of the external and internal anatomy of several representative insects, such as the locust, roach, cicada, honeybee, crane-fly, etc. Laboratory fee, \$2.50.

A 41. **Elementary Economic Entomology.** Credit three hours. Lectures, daily except Sat., 9. *Comstock* 145. Practical exercises, M W F, 1:40-4. *Comstock* 100. Professor READIO.

Includes lectures, conferences, and discussions on the life histories and habits of injurious insects, together with methods of control. The practical exercises include a study of the more important insecticides and of as many of the common pests as time permits. There will be a number of field trips. Laboratory fee, \$2.

GENETICS

A 101. **General Genetics.** Credit four hours. Prerequisite, two courses of a biological nature, and permission to register. Courses in cytology and in taxonomic botany or zoology will be found helpful. Lectures, daily except Sat., 8. Laboratory, M W F, 1:40-4. Conferences to be arranged. *Plant Science* 146. Professor FRASER.

An introductory course designed to acquaint the student with the fundamental principles of heredity and variation. Discussions of simpler cases of inheritance, gene interaction, inheritance of sex, sex and gene linkage, quantitative inheritance, the genetics of inbreeding and outbreeding, cytoplasmic inheritance and mutation, with suggestions as to the relation of genetical principles to eugenics. Laboratory studies of hybrid material in plants and breeding experiments with the vinegar fly, *Drosophila*. Laboratory fee, \$3.

HISTOLOGY AND EMBRYOLOGY

The courses in histology and embryology are given in the histological laboratories in *Stimson Hall*. The department is well equipped for instruction in both subjects, having a large and adequate supply of modern microscopical instruments and an extensive collection of demonstration material for both histology and embryology. Microscopes are furnished by the department. Consultation with the instructors previous to registration is advised.

S 101. **Histology.** Credit four hours. No prerequisite, but previous work in biology, zoology, and botany or physiology is recommended. Lectures, daily except Sat., 12. Laboratory, three hours every morning except Saturday. *Stimson*. Assistant Professor SNOOK and assistants.

For students of biology or those preparing for medicine. The cell and cellular origin of the body; the structure and development of its component tissues. Each student will prepare or receive a series of typical microscopic preparations. Laboratory fee, \$6.

S 102. **The Organs.** Credit four hours. Opportunity will be afforded a limited number of students for a laboratory study of the histology of the organs. Laboratory, 2-5 every afternoon except Sat., and conferences at hours to be arranged. *Stimson*. Professor KINGSBURY and Mr. BATES. Laboratory fee, \$6.

S 104. **Embryology of Vertebrates.** Credit four hours. Prerequisite, a course in the histology of the tissues or a satisfactory equivalent in other biological work involving training in the use of the microscope. Lectures, daily except Sat., 9. Laboratory, three hours every morning except Sat. *Stimson*. Professor KINGSBURY and assistants.

For students of biology or those preparing for medicine. Preparation and study of embryological specimens from all the chief groups of vertebrates. Emphasis is placed on the embryology of the chick. The student also acquires a knowledge of special methods useful in embryological work. Laboratory fee, \$6.

ORNITHOLOGY

*A 11. **Ornithology.** Credit three hours. Lectures, M W F, 11. *Fernow* 122. Laboratory, M W, 1:40-4:30, or T Th, 1:40-4:30. *Fernow* 210. Field work, M W or T Th, 5:30-8 A.M. Dr. KELLOGG and Dr. E. G. ALLEN.

This course provides an introduction to the study of birds and familiarity with the local species. The lectures cover such subjects as classification, migration, coloration, song, nest-building, eggs, care of young, methods of attracting birds, and their economic importance. The laboratory work with bird skins, nests, and eggs gives an intimate knowledge of the birds of eastern North America, their life histories and distribution, and familiarity with the use of manuals. The aim of the field work is the identification of birds by their songs and habits as well as by their plumage. Each student should be provided with field or opera glasses. Laboratory fee, \$3.

A 211. **Applied Ornithology.** Credit two hours. Lectures, T Th, 9. *Fernow* 212. Laboratory, T Th, 10-1. *Fernow* 212. Dr. KELLOGG. Registration limited to 15 students. Prerequisite, A 11 or its equivalent (may be taken at the same time).

This course is intended primarily for students planning to teach biological science or to engage in professional work in ornithology. Field collecting, preparation of specimens, and natural history photography are emphasized together with the food and feeding habits of birds; and class room, museum, and biological survey methods. Students are expected to provide their own cameras. Laboratory fee, \$3.

PLANT PATHOLOGY

A 1. **Diseases of Plants and their Control.** Credit two to four hours. Prerequisite, permission to register. Lectures, three times a week and other times by arrangement. *Plant Science* 336. Laboratory, the completion of a minimum of five exercises for each credit hour, with personal conferences. Conferences by arrangement. Laboratory at the student's convenience. Professor MASSEY and Dr. DAVIS.

A fundamental course treating of the nature, cause, and control of plant diseases, illustrated by studies of the more common diseases of cultivated crops. The method of conducting the course enables the individual student to study diseases which are of particular interest to him. The work is designed to meet the special needs of teachers of agriculture in secondary schools, teachers of biology, and county agents, as well as undergraduates in the College of Agriculture. Laboratory fee, \$1.25 a credit hour; breakage deposit, \$5.

A 121. **Comparative Morphology of Fungi.** Credit four hours. For description, see under **Botany**.

A 222. **Mycology.** Credit four hours. For description, see under **Botany**.

PSYCHOLOGY

*S 1. **Elementary Psychology.** Credit two hours. Lectures and recitations, daily except Sat., 8. GS C. Assistant Professor KREEZER.

Basic problems and principles of human psychology. The course is designed as a general foundation for the later study of social, animal, and child psychology, and the psychology of the abnormal. Class demonstrations will supplement the lectures and recitations. Textbook. Boring, Langfeld, and Weld, *Psychology: A Factual Textbook*.

S 6. **Attention.** Credit two hours. Daily except Sat., 8. *Morrill* 42. Professor DALLENBACH.

In this course the application of attention to advertising, to hypnosis, to testimony, to efficiency, and to learning, will receive special emphasis. The application will, however, be made only after the student has been grounded in the elementary facts and laws of attention. The development, the conditions, the kinds, and the levels of attention will first be considered; then the experimental

investigations will be reviewed; and thereafter the practical considerations will be taken up.

Demonstrations and class-experiments will be used frequently for illustration. No textbook will be prescribed, but the lectures will be supplemented by assigned readings in standard works.

S 8. The Psychology of Personality. Credit two hours. Lectures, readings, and discussions. Daily except Sat., 9. *Morrill* 41. Professor WELD.

A critical study of the term personality, with emphasis laid upon the unstable, the maladjusted, and the introverted.

S 10. The Psychology of Social Control. Credit two hours. Lectures, readings, and discussions. Daily except Sat., 11. *Morrill* 41. Professor WELD.

A study of the social psychology of rules, regulations, and laws; their origin and growth, and their significance for social living. The survey will include public opinion and the law, respect for the law, why we keep the rules and why we break them, authority, reward, and punishment.

S 15. Psychology of the Abnormal. Credit two hours. Lectures, readings, and discussions. Daily except Sat., 10. *Morrill* 40. Assistant Professor KREEZER.

A survey of the psychological disorders and deficiencies: Maladjustments of normal children and adults; mental deficiency; hysteria, neurasthenia, and psychasthenia; schizophrenia, manic-depressive psychosis, and organic psychoses. A consideration of psychological, physiological, and genetic factors.

S 16. Applications of Psychology. Credit two hours. Lectures, recitations, and readings. Daily except Sat., 9. *Morrill* 42. Professor DALLENBACH.

A general review of the experimental and statistical evidence dealing with the applications of psychological methods and facts to problems in business and industry. Topics to be considered will include personnel, industrial selection, advertising and selling, and market research.

ZOOLOGY

***S 1a. Introductory Zoology.** Credit three hours. Equivalent to Zoology I, first term. Lectures, daily except Sat., 8. *McGraw* 203. Laboratory, daily except Sat., 9-10:30. *McGraw* 104. Assistant Professor YOUNG and Dr. MEKEEL.

The structural and physiological organization of an animal type as viewed from the standpoint of the organism as a biological unit. Also an introduction to the basic phenomena of cellular activity as illustrated by reproduction, development, heredity, and variations. Laboratory fee, \$2.50.

[*S 1b. **Intermediate Zoology.** Credit three hours. Equivalent to Zoology I, second term. Lecture, daily except Sat., 1:40-2:30. *McGraw* 203. Laboratory, daily except Sat., 2:30-4. *McGraw* 104. Assistant Professor YOUNG and Dr. MEKEEL.

A study of the groups of animals, stressing the pathway of descent, and the critical epochs thereof. Also considering adaptations, behavior, interrelationships, classification, and the zoology of the human species. Laboratory fee, \$2.50. Courses 1a and 1b may be taken simultaneously for six hours credit. **Not given in 1939.]**

A 8. Systematic Vertebrate Zoology and Ecology. Credit four hours. Lectures, M T W Th, 1:40-2:30. Laboratory and field work, M T W Th, 2:30-5:30. *McGraw*. Several all-day trips are required. Occasionally a field trip, 5:30-8 a.m. or 5-8 p.m., may be substituted for the regular periods. Professor WRIGHT and Assistant Professor HAMILTON.

Lectures on fishes, amphibians, reptiles, birds, and mammals; their habits, life-histories, coloration, respiration, locomotion, reproduction, and adaptations, together with their classification, nomenclature, characters, and relationships. Laboratory study of the parts employed in the classification of these groups, with training in the identification of two hundred and forty North American species. Field work is partly to give practice in field observations and in ready identification of local vertebrates in their natural environment, and partly to introduce

some ecological methods. Textbook: *Jordan's Manual of Vertebrates of the Northeastern United States*, new edition. Laboratory fee, \$4.50.

S 11. Comparative Anatomy of the Vertebrates. Credit four hours. Prerequisite, Zoology 1 or its equivalent. Daily except Sat., 1:40-5. *McGraw* 201. Mr. GARRETT.

Thorough dissection and study of representative vertebrate types. Laboratory work is correlated and supplemented by theoretic discussions.

S 16b. Invertebrate Zoology. Credit four hours. A similar but slightly more comprehensive course than Zoology 16, second term. Prerequisite, Zoology 1a and 1b or their equivalents. Lectures, daily except Sat., 9. *McGraw* 203. Laboratory, and field trips, daily except Sat., 10-12:20. *McGraw* 207. Assistant Professor YOUNG and Mr. HEMING.

Animals belonging to the following groups will furnish subject matter of the course: Echinodermata, Annelida, Arthropoda, Mollusca, and the prochordates. To be offered in alternate summers with 16a.

This course should provide a better foundation for the advanced students in the field of zoology or give to the teacher a knowledge of a larger variety of forms available for use in general courses, either in high schools or in colleges. It differs from the type of invertebrate course offered by marine biological laboratories in that stress is laid upon many species which may be secured alive away from the sea shore. Methods used in collecting and the study of habitats are the more important objectives of the field trips. Classification, structure, and development are emphasized in the laboratory. Laboratory fee, \$3.

[**S 16a. Invertebrate Zoology.** Credit four hours. A similar but slightly more comprehensive course than Zoology 16, first term. The following groups of animals are studied: Protozoa, Porifera, Coelenterata, Platyhelminthes, Nemertea, Nemathelminthes, Trochelminthes Bryozoa, and Brachiopoda. Offered in alternate summers with 16b. **Not given in 1939.**]

B 99. Special Problems with Animals. Credit two or more hours. Hours to be arranged. In registering for this course the name of the professor with whom the work is to be taken must be stated.

Students sufficiently prepared may arrange for the study of some problem or special topic. Such work may lie in the field of general zoology, invertebrate zoology, systematic vertebrate zoology, comparative anatomy of vertebrates, ornithology, histology, embryology, general entomology, systematic entomology, economic entomology, or general biology. A member of the staff must supervise the work.

GEOGRAPHY, GEOLOGY, AND METEOROLOGY

GEOGRAPHY AND GEOLOGY

It is the purpose of this department to meet the needs of teachers of geography and general science, and to provide courses of practical and cultural value to college students of geography and geology. The work embraces lectures, laboratory, and field instruction in physical and economic geography, and in the elements of geology. The environs of Cornell University are rich in phenomena of geographic and geologic interest. General field work consequently is especially emphasized at Ithaca, and technical field instruction is provided for men students at a camp in Pennsylvania. Courses S 1, S 5, S 9, S 10, and S 21 successfully completed are an adequate background in geology for entrance to study for the M.S. degree in geology at Cornell.

The laboratories are well equipped with apparatus and illustrative material. The material includes teaching and reference collections of minerals, rocks, fossils, maps, photographs, models, and more than five thousand lantern slides. The lecture rooms and laboratories are in *McGraw Hall*.

Students planning to work in the department at Ithaca should, if possible, register for courses on Monday, July 3, at the Drill Hall. Registration for the Summer Field School in Pennsylvania should be by correspondence as early as possible in the spring.

LECTURE COURSES IN GEOGRAPHY AND GEOLOGY

***S 1. Physical Geography.** Credit two hours. Daily except Sat., 9. *Geological Lecture Room, McGraw* (first floor, south end). Professor VON ENGELN.

An introductory course in physical geography, including discussion of the nature and form of the continents; the structure and development of the relief of the land; the physiographic cycle in humid and arid regions; glaciers; the glaciation of North America; the elements of oceanography.

The lectures are illustrated by lantern slides, maps, models, and charts. Students registering in course S 1 are advised to take also the related courses S 9 and S 10. Credit for geology A, regular session, will be allowed for successful completion of the four courses S 1, S 5, S 9, S 10.

S 2. Economic Geography. Credit two hours. Daily except Sat., 11. *Geological Lecture Room, McGraw*. Professor VON ENGELN.

The effect of geographic factors on the production and distribution of commodities. Discussion of the origins and regional background of industry and commerce; the volume, extent, and utilization of important products and resources; location and growth of cities. Recommended for teachers who wish broad training in regional geography.

***S 5. Geology.** Credit two hours. Daily except Sat., 10. *Geological Lecture Room, McGraw*. Assistant Professor BURFOOT.

An introductory course in geology, consisting of lectures and readings in textbook upon the following topics: origin of the earth; geological history of the earth; materials of the earth's crust and their arrangement, as well as the forces modifying them; vulcanism, earthquakes, etc.; development of life on the earth.

The lectures will be illustrated with lantern slides, models, maps, and specimens. Students registering for this course are urged to take the laboratory course S 9 and, if possible, course S 10. Credit for Geology course 100, regular session, will be allowed only for successful completion of all three courses S 5, S 9, S 10; for course A, S 1, S 5, S 9, S 10.

LABORATORY AND EXCURSION COURSES IN BOTH GEOGRAPHY AND GEOLOGY

***S 9. Geology, Laboratory Course.** Credit one hour. W F, 1:40-4. *General Geological Laboratory, McGraw* (first floor, middle entrance). Assistant Professor BURFOOT and Dr. WELLS.

This course is designed to supplement courses S 1 and S 5. A study will be made of the more common structural phenomena; of the interpretation and uses of topographic and geological maps; of characteristic life forms developed in different geological periods; and of the more common rocks and minerals. Laboratory fee, \$1.

S 10. Geography and Geology, Field Course. Credit one hour. This course should be elected by all those registering in course S 1 or S 5. With courses S 1 and S 9 it affords a comprehensive course in physical geography; with courses S 5 and S 9 it will give a similarly broad training in elementary geology, as the dynamic phases of geology are emphasized on the excursions. Mimeographed outlines of the excursions are to be secured from one of the bookstores by each student desiring credit. See also a pamphlet, obtainable in Ithaca, on *The Geography and Geology of the Cornell Region*. Professor VON ENGELN, Assistant Professor BURFOOT, and Dr. WELLS.

Students desiring credit or certificates of attendance must register in S 10 and will be given preference in accommodations.

Those desiring University or entrance credit must take field notes and hand in written reports. Excursions 1, 2, 3, 4, 5, are required of all students in the course, and in addition for one hour's credit they must take any two of the following four all-day excursions: 6, Watkins Glen; 7, Northern Pennsylvania; 8, Lake Ontario; and 9, Carpenter's Falls.

Meeting place and time announced in mimeographed outlines or by bulletin. Meet for first excursion, Monday, July 10, at McGraw Hall, 2 p.m. Excursions 1-5, Monday afternoons; 6, 7, 8, 9, all day. On those excursions to which a cost is attached for bus or railway fares, persons wishing to go must register at the

department and secure tickets in advance of the date of the trip. For bus fare on the first excursion, bring 10 cents. The total cost of the trips will be from \$7 to \$10, according to the choices made. Announcements regarding field trips are posted on the middle door of *McGraw Hall* and all arrangements for reservations and tickets are made in the Geology Department Office, middle entrance, *McGraw Hall*. The trips are open to others besides the members of the excursion class as far as accommodations are available. Stops are made at points of interest, explanations given, questions asked, and discussion invited.

OUTLINE OF EXCURSIONS: COURSE S 10

Monday Afternoons

1. **Cascadilla Creek.** Meet at the south entrance to McGraw Hall at 2 P.M. Bring registration slips and excursion outline. To study the origin and nature of sedimentary rocks, also processes of erosion, transportation, deposition, and cementation. A study in detail of one of the large gorges and its special features. Opportunity for the collection and identification of a variety of rock kinds is afforded on this trip. Bring ten cents for return bus fare. July 10.

2. **Snyder Hill.** By bus. No tickets; bring 25 cents in change for bus fare. To become acquainted with the lie of the land about Cornell, to learn the place names and nature of the broader physiographic features, studying the maturely dissected plateau and processes of weathering. The top of the hill is a vantage point from which a good view of the lake and the land for miles to the north, east, and west may be had. July 17.

3. **Portland Point.** By bus. Tickets. To study rock structure; intrusion of igneous rocks into sedimentary formations; rock-folding and small scale faulting and associated phenomena; vein-formation; fossil content of strata; economic utilization for cement. July 24.

4. **Enfield Gorge and Falls.** By bus. Tickets. To study the relations of pre-glacial and hanging valleys and the postglacial and interglacial gorges, their origin and features. Joint-plane guidance of stream courses. Ride to the head of the gorge, and walk through it to the crest of Lucifer Falls. Swim and picnic at the close of the excursion at the lower Enfield pool. July 31.

5. **Terminal Moraine, Kames, Esker, and Outwash Deposits.** By bus. Tickets. Varna, Freeville, and South Cortland. To study a massive morainic loop and the glacio-fluvial deposits which are well developed in this section. August 7.

All-day Excursions

6. **Watkins Glen.** By bus. Tickets in advance. Watkins Glen is one of the most beautiful scenic spots in the country. The party will study the gorge, its pot holes, and its falls in detail; and consider its relation to the Seneca Lake valley in comparison with the conditions at Ithaca in relation to the Cayuga valley. Luncheon at the head of the gorge. July 15.

7. **Northern Pennsylvania.** By bus. Tickets in advance. Geology of a coal mine and the physiography of the Susquehanna valley at Wyalusing Rocks. Stops will be made to study Appalachian structure, folds and faults, and the stratigraphy of a complete section from the Portage beds of the Devonian through the Pottsville conglomerate of the Pennsylvania. An exceptionally fine scenic trip over the Roosevelt Highway through southern New York and northern Pennsylvania. July 22.

8. **Sand Dunes of Lake Ontario.** By bus. Secure tickets in advance. Take lunch. To study glacial drainage phenomena, overflow channels, 'fossil Niagara' at the Clark Reservation, high level lake deposits, drumlins, and the extensive and characteristic sand dune area at the east end of Lake Ontario. At the lunch hour there will be an opportunity for bathing in Lake Ontario. July 29.

9. **Carpenter's Falls and Fillmore Glen.** By bus. Secure tickets in advance. Take lunch. Have also bag or small basket for specimens. Fossil collecting at a remote, unexploited gorge and waterfall. Demonstration, by means of the Tully l. s., of stratigraphic correlation over a wide area. Visit a small remnant

of virgin forest at the head of Skaneateles Lake. At close of trip swimming at Fillmore Glen State Park. August 5.

FIELD SCHOOL

S 21. Summer Field School in Geology. Intended for men students who desire to study geology in the field. The camp is located in central Pennsylvania near Tyrone and instruction covers a period of six weeks, from June 18 to July 29. Six hours of college credit are given upon successful completion of the course. Fixed expenses, including the regular tuition fee of \$55, are approximately \$145. Registration is limited to men. Professor NEVIN.

The region selected is especially suitable for field work in geology. Sedimentary rocks from Cambrian to the Coal Measures are represented, with a total thickness of some 27,000 feet. Folds and faults are extensively developed, and their effect on the topography is very marked. Instruction includes reconnaissance and detailed mapping. The course, open to men students with either elementary or advanced training in geology, will be conducted to meet the individual needs of the student. A special circular containing detailed information will be furnished upon request.

METEOROLOGY

***A 1a. Meteorology.** Credit two hours. Lectures and discussions. Daily except Sat., 10. *Plant Science* 143. Professor MORDOFF.

This course is adapted to the needs of teachers and students in subjects of which the weather is an important factor, particularly teachers of general science, physical geography, and agriculture. It is designed to acquaint the student with the laws governing the primary and secondary circulation of the atmosphere, and with the development, progression, and conditions that attend cyclones, tornadoes, and other atmospheric phenomena. Attention is given to the principles and practice of weather forecasting from weather maps and from local observations.

***A 1b. Meteorology, Laboratory Course.** Credit one hour. Two laboratory periods to be arranged. Must be accompanied by course A 1a. *Plant Science* 114. Professor MORDOFF.

The work consists in the study of the principal weather and climatic elements with the aid of maps, charts, and instruments. The various meteorological instruments will be studied, as well as the methods of taking and recording the observations. Opportunity will be given the student for making practice forecasts.

A 2. General Climatology. Credit one hour. Must be accompanied or preceded by course A 1. Lectures and discussions M W F, 9, or other periods to be arranged. *Plant Science* 114. Professor MORDOFF.

Designed to give a general knowledge of climatology and of the various climates of the United States. It is planned especially to meet the needs of teachers of general science, physical geography, and agriculture.

A 6. Special Problems. Credit and hours by arrangement. Professor MORDOFF.

Special work in Meteorology and Climatology may be elected by qualified students with the permission of the instructor.

ASTRONOMY, CHEMISTRY, MATHEMATICS, AND PHYSICS

ASTRONOMY

***S 1. General Astronomy.** Credit two hours. Daily except Sat., 8. *Rochester* 322. Four evening observing periods during the term at the Observatory. Professor BOOTHROYD.

An introductory descriptive course illustrated by observations, models, and lantern slides.

*S 2. **Laboratory Astronomy.** Credit one hour. T Th, 2-4, and one clear T or Th evening in each of the first five weeks. *Observatory and Rockefeller* 357. Professor BOOTHROYD.

This course must be preceded or accompanied by course S 1.

Observations to acquaint the student with the constellations and the most important facts about planets, sun, and stars, together with laboratory exercises dealing with time seasons, eclipses, meteors, and variable stars.

S 183. **Navigation and Nautical Astronomy.** Credit three hours. Lectures and recitations, M W F, 9. *Rockefeller* 322. Laboratory, T Th, 2-4. *Rockefeller* 357, with six suitably arranged observation periods at the Observatory. These periods will be arranged during the first half of the session and will be used for sextant and compass observations on sun, moon, and stars. This observational data is used for the final class and laboratory exercises as a test of the student's ability to find his position on the earth's surface. Professor BOOTHROYD.

This course may be taken by Civil Engineering students to satisfy the required work in course 182, the extra hour credit being counted as a Civil Engineering elective. Such students will make some of the required observations with a surveyor's transit instead of with the sextant and compass.

The course is designed to give the student not only an understanding of the fundamental problems of Aviation and Navigation but the ability to make his own observations and to find his position therefrom.

S 181. **Special Problems.** Credit and hours by arrangement. Professor BOOTHROYD.

Special work in Astronomy or Astrophysics may be elected by qualified students with the permission of the instructor.

Courses S 1 and S 2 offer an introduction to astronomical ideas and methods and give a good background for teachers who may wish to prepare more thoroughly for teaching general science or geography.

Those who take both courses, S 1 and S 2, and those who take courses S 1 and S 183 may count three hours toward fulfilling half of the requirement of Group 4 in the College of Arts and Sciences.

Demonstrations at the Observatory. A series of lectures will be offered on Monday, Wednesday, and Friday evenings when clear. These will be illustrated by actual observations with the 12-inch equatorially mounted telescope as well as by diagrams and astronomical photographs. These lectures and demonstrations carry no credit except for those registered in course S 1.

During the first and last weeks of the Session these demonstrations will be general and open to all Summer Session students. During the second to fifth weeks inclusive a connected series of four lectures will be given which will give a background of astronomical knowledge sufficient to enable one to understand and appreciate more fully astronomical phenomena.

Those taking course S 1 are admitted by class card. Ninety-nine other tickets will be given out each week, from the second week through the fifth. Holders of these tickets will have the advantage offered by such a connected series of lectures and observations. Tickets Nos. 1-33 are good for Mondays, 34-66 for Wednesdays, and 67-99 for Fridays. When the weather is doubtful on a given M W or F evening the Summer Session Office at 245 *Goldwin Smith Hall* will notify inquirers whether or not the Observatory will be open, such inquiries to be made between 3:30 and 4:00 p.m.

Tickets may be obtained without charge at the Summer Session Office, 245 *Goldwin Smith Hall*.

CHEMISTRY

The courses announced below correspond entirely or in part with courses given during the regular session of the University. For regular students the requirements for admission to the various courses will be the same as during the year.

Teachers may be admitted to any course for which their general training or

experience may be considered to prepare them. Efforts will be made to meet the individual needs of teachers by arranging and modifying the work, within reasonable limits, so as to fulfill the particular requirements in each case.

In some laboratory courses a deposit to cover the usual laboratory fee and also breakage and other variable items of expense is charged. At the end of the course the unexpended balance is returned to the student. In other courses a laboratory fee of fixed amount is charged. The amounts of the deposits and laboratory fees are indicated in the descriptions of courses.

All courses in Chemistry are given in the *Baker Laboratory of Chemistry*.

***S 102. General Chemistry.** Credit six hours. For students who have not had high school chemistry. Lectures, daily except Sat., 8. *Main Lecture Room*. Professor BROWNE and assistant.

The lectures deal with the fundamental theories and laws of chemistry and with the more common elements and their compounds. They are profusely illustrated by experiments.

Recitations, daily except Sat., 9. *Room 22*. Professor BROWNE.

The recitations deal with the subject matter of the lectures and with the experimental work in the laboratory and afford thorough drill in the solution of chemical problems.

Laboratory, daily except Sat., 10-1. *Rooms 177 and 150*. Professor BROWNE and Dr. FRIERSON.

A series of experiments designed to illustrate the fundamental laws of chemistry and to acquaint the student with the principal elements and their compounds. The equivalent of 102b may be obtained by attending the last three weeks of the Summer Session. Deposit, \$20.

***S 104. General Chemistry.** Credit six hours. For students who have had high school chemistry. Lectures, recitations, and laboratory practice at hours to be arranged. Professor BROWNE and assistants. Deposit, \$20.

***S 106. General Chemistry.** Credit six hours. For students in the College of Engineering. Lectures, recitations, and laboratory practice at hours to be arranged. Professor BROWNE and assistants. Deposit, \$20.

***S 205. Introductory Qualitative Analysis.** Credit three hours. Must be taken with course S 206. Lectures and recitations, daily except Sat., 8, and T Th, 11. *Room 206*. Dr. LONG.

A study of the application of the theories of general chemistry to the systematic separation and detection of the common elements and acid radicals.

***S 206. Introductory Qualitative Analysis.** Credit three hours. Must be taken with course S 205. Laboratory, daily except Sat., 9-1. *Room 252*. Dr. LONG.

A study of the properties and reactions of the common elements and acid radicals; the qualitative analysis of a number of solutions and solid compounds. Deposit, \$25.

***S 210. Introductory Qualitative Analysis.** Shorter course. Lectures and laboratory practice. Credit three hours. Lectures, daily except Sat., 8. *Room 206*. Laboratory, daily except Sat., 9-12. *Room 252*. Dr. LONG.

The properties and reactions of the common elements and acids, and their detection in various liquid and solid mixtures. Deposit, \$20.

***S 225. Introductory Quantitative Analysis.** Shorter course. Lectures and laboratory practice. Credit three hours. Lectures, M W F, 11. *Room 206*. Professor NICHOLS. Laboratory, daily except Sat., 8-11. *Room 252*. Professor NICHOLS and Dr. LONG.

A study of the fundamental principles of gravimetric and volumetric analysis, and the analysis of various substances by these methods. Deposit, \$20.

S 230. Advanced Quantitative Analysis. Recitations and laboratory practice. Credit three hours. Laboratory, daily except Sat., 8-1. *Room 252*. Professor NICHOLS and Dr. LONG.

The calibration of weights and volumetric apparatus; the analysis of ferrous and non-ferrous alloys, silicates, and organic substances by various gravimetric, volumetric, and combustion methods. Deposit, \$20.

****S 275. Quantitative Microanalysis.** Credit three or more hours. Daily except Sat., 8-5. *Room 282.* Professor NICHOLS and assistant.

Laboratory practice in typical methods of both organic and inorganic quantitative microanalysis. Fee, \$20.

S 305. Introductory Organic Chemistry.

A. Credit three hours. Lectures and written reviews. Daily, 8, throughout the session, and also daily, 9, during the first three weeks. *Room 207.* Dr. BRUCE.

The lectures discuss systematically the more important compounds of carbon, their occurrence, methods of preparation, reactions, and uses. The work covered is equivalent only to the first half of the year course. Students who wish a complete course must register in Chemistry S 375.

S 310. Introductory Organic Chemistry.

A. Credit one to three hours. Laboratory practice and oral reviews. Open to those who have had or who are taking S 305 A. Hours to be arranged in the mornings. *Room 250.* Dr. MILLER and Mr. FORMO. Deposit, \$35.

B. Credit one to three hours. Laboratory practice and oral reviews. Open to those who have had S 305 A and S 310 A. The course is a continuation of Part A. Hours to be arranged, in the mornings. Dr. MILLER. Deposit, \$35.

The student prepares a number of typical compounds and familiarizes himself with their properties, reactions, and relations.

S 320. Advanced Organic Chemistry. Credit two or more hours. Laboratory practice at hours to be arranged, in the mornings. Dr. MILLER.

An advanced course in the preparation of organic compounds, involving the use of the more difficult methods and of the less common reagents. Fee variable.

S 375. Introductory Organic Chemistry. Shorter course. Lectures and written reviews. Daily, 8-10. *Room 207.* Dr. BRUCE, Dr. MILLER, and Mr. FORMO.

A shorter course in organic chemistry, designed for students in home economics, pre-medical, biological, and agricultural curriculums. Credit four hours for lectures and written reviews. Laboratory practice. Credit one or two hours. Hours to be arranged in the mornings. *Room 250.* Deposit, \$15-\$20.

S 405. Introductory Physical Chemistry.

A. Credit three hours. Lectures, daily except Sat., 8, and one other lecture, T, 2-3:30. *Room 7.* A knowledge of calculus and elementary organic chemistry is prerequisite to this course, except by special permission. Assistant Professor HOARD.

A systematic presentation of modern chemical theory. The subject matter includes gases, liquids, and solids; the elements of thermochemistry and thermodynamics; the phase rule and the theorem of Le Chatelier; the theory of solution; chemical equilibrium.

B. Credit three hours. Lectures, daily except Sat., 9, and one other lecture, Th, 2-3:30. *Room 7.* A knowledge of calculus and elementary organic chemistry is prerequisite to this course, except by special permission. Assistant Professor HOARD.

A continuation of Part A. The subject matter includes elementary electrochemistry and electrolytic conductance; ionization and ionic equilibria; reaction velocity and catalysis; miscellaneous topics in modern physical chemistry.

S 410. Physical Chemistry Laboratory.

A. Credit three hours. Laboratory practice, daily except Sat., 8-1. *Room 1.* Assistant Professor HOARD and Mr. JOYNER. Open only to those who have taken or are taking course S 405 or its equivalent. With the data obtained in the laboratory as a basis, detailed reports are written covering each of the following topics: molecular weight determination by vapor density; boiling point and freezing point methods; vapor pressure; viscosity; distillation of liquid mixtures.

B. Credit three hours. Laboratory practice, daily except Sat., 8-1. *Room 1.* Assistant Professor HOARD and Mr. JOYNER. Open only to those who have taken or are taking course S 405 B or its equivalent. The course is a continuation of Part A. The following topics are considered: dissociation; solubility;

reaction velocity and catalysis; indicators; thermochemistry; diffusion; colloids and absorption; phase rule studies.

S 465. **Laboratory Practice in Physical Chemistry.** Credit one to three hours. Laboratory periods to be arranged. Assistant Professor HOARD and Mr. JOYNER.

This course is designed to afford opportunity for special laboratory practice in physical chemistry, colloid chemistry, or electrochemistry.

S 530. **Introductory Chemical Microscopy.** Lectures and laboratory practice. Credit three hours. Lectures, M W F, 10. Room 377. Laboratory, M W F, 11-1, T Th, 10-1. Room 378. Professor MASON and assistant.

Microscopes and their accessories, as applied to problems in chemistry and technology. Micrometry; quantitative analytical methods; optical properties of crystals and other double refractive materials; physico-chemical studies; illumination, photomicrography, and ultramicroscopy; recognition of textile and paper fibers. Laboratory fee, \$5.

S 535. **Advanced Chemical Microscopy.** Laboratory practices. Credit two or three hours. Prerequisite, course S 530. Laboratory periods and conference hours to be arranged. Room 378. Professor MASON.

Practice in the examination and analysis of inorganic substances containing the more common elements, with special reference to rapid qualitative methods and to the analysis of minute amounts of material.

Students not desiring University credit, who wish to secure a working knowledge of Chemical Microscopy in the shortest possible time, may arrange by advance correspondence with the instructor to cover the parts of both of the above courses which best meet their needs. Laboratory fee, \$5.

S 195, S 295, S 395, S 495, S 595. **Research.** Credit one to six hours. Senior chemists, and others by special permission, may elect research in the fields of Inorganic, Analytical, Organic, or Physical Chemistry, or Chemical Microscopy, under the direction of the respective members of the staff of instruction. Fee variable.

MATHEMATICS

Each member of the staff will have a daily office hour for consultation with students. It is urged that this opportunity be utilized by all concerned.

In the following list, courses S 1 to S 5b are equivalent to courses having the same numbers in the Announcement of the College of Arts and Sciences for 1939-40.

Courses S 1, S 2, S 3 are equivalent to the advanced entrance requirements of Cornell University and of the College Entrance Examination Board; they presuppose a ready knowledge of elementary and intermediate algebra and of plane geometry. They are also suitable for teachers in the secondary schools who wish to review the subjects.

Students taking S 5a or S 5b are requested to take no other University work during the session without special permission from the Department of Mathematics.

*S 1. **Solid Geometry.** Credit three hours. Daily, 9. *White 1.* Assistant Professor RANDOLPH. (Office hour, 10, *White 3.*)

*S 2. **College Algebra.** Credit three hours. Daily, 10. *White 6.* Professor HURWITZ. (Office hour, 9, *White 8.*)

*S 3. **Trigonometry.** Credit three hours. Daily, 11. *White 5.* Professor AGNEW. (Office hour, 10, *White 8.*)

*S 5a. **Analytic Geometry and the Calculus.** (First term's work.) Credit five hours. Daily, 8 and 11. *White 1.* Assistant Professor LAWRENCE. (Office hour, 9, *White 3.*)

*S 5b. **Analytic Geometry and the Calculus.** (Second term's work.) Credit five hours. Daily, 8 and 11. *White 21.* Dr. LEWIS. (Office hour, 9, *White 23.*) *White 9.* Dr. GIVENS. (Office hour, 9, *White 11.*)

S 20. Teachers' Course. Credit two hours. Daily except Sat., 9. *White 10.* Professor CARVER. (Office hour, Professor Carver, 11, *White 12.*)

The course will treat certain selected topics in the algebra and geometry of the secondary school curriculum; such as the number system, the meaning and existence of solutions of equations and sets of equations, geometry as a logical system, and constructions with ruler and compasses. A part of the time will be devoted to a critical study of the content and organization of secondary school mathematics courses and programs.

S 21. Theory of Numbers. Credit three hours. Daily, 11. *White 6.* Professor HURWITZ. (Office hour, 9, *White 8.*)

Properties of divisibility, linear and quadratic congruences, primitive roots, and selected topics.

S 41. Elementary Differential Equations. Credit three hours. Daily, 8. *White 2.* Assistant Professor RANDOLPH. (Office hour, 10, *White 3.*)

A first course in ordinary differential equations. A knowledge of differential and integral calculus is presupposed.

S 42. Advanced Calculus. Credit three hours. Daily, 12. *White 6.* Professor AGNEW. (Office hour, 10, *White 8.*)

A study of the processes of the calculus; definitions and properties of limits, continuity, derivatives, and integrals.

S 59. Synthetic Euclidean Geometry. Credit three hours. Daily, 10. *White 2.* Assistant Professor JONES. (Office hour, 9, *White 4.*)

This course is intended primarily for teachers in secondary schools. Its aim will be to provide training in the use of the methods of proof of the usual high school plane geometry and to give useful background for the teaching of this subject. To this end there will be developed a body of theorems beyond the scope of but based upon the usual high school course. Stress will be laid on "originals".

S 61. Projective Geometry. Credit three hours. Daily, 10. *White 10.* Professor CARVER. (Office hour, 11, *White 12.*)

The principles underlying projective forms of the first and second degrees will be discussed. Although no knowledge of mathematics beyond plane geometry will be presupposed, additional training is highly desirable.

READING AND RESEARCH COURSES

In addition to the preceding courses opportunities are offered to graduate students to participate in informal work by reading and research under the direction of members of the Department of Mathematics. A regularly registered student may, by arrangement, obtain academic credit for any of this work; and number of hours of credit will depend on the amount of work done. Students interested in such directed reading or research may consult any member of the staff.

S 100a. **Topics in Algebra.

S 100b. **Topics in Analysis.

S 100c. **Topics in Geometry.

S 100d. **Topics in Applied Mathematics.

PHYSICS

***S 3. Introductory Experimental Physics: Mechanics, heat and sound.** Of the three parts described below, the student may elect (a), (a,b), or (a,b,c) without consultation; for any other combination he must have the approval of the instructor.

Parts (a,b) together constitute the complete work of Physics 3 of the regular school year. If all three parts are taken, the student should register for course S 11.

(a) Credit two hours. Demonstration lectures and recitations. Daily except Sat., 11. *Rockefeller A.* Professor GRANTHAM.

(b) Credit one hour. Fourteen experiments, each requiring at least one laboratory period. Laboratory open daily except Sat., 1:40-4. *Rockefeller* 252. Dr. TOMBOULIAN. Laboratory fee, \$5.

(c) Credit one hour. Problem work. Sat., 8:30-11. *Rockefeller* 252. Dr. TOMBOULIAN.

*S 4. **Introductory Experimental Physics: Electricity and light.** Of the three parts described below, the student may elect (a), (a, b), or (a, b, c) without consultation; for any other combination he must have the approval of the instructor.

Parts (a, b) together constitute the complete work of Physics 4 of the regular school year. If all three parts are taken the student should register for course S 12.

(a) Credit two hours. Demonstration lectures and recitations. Daily except Sat., 9. *Rockefeller* B. Professor HOWE.

(b) Credit one hour. Fourteen experiments, each requiring at least one laboratory period. Laboratory open daily except Sat., 1:40-4. *Rockefeller* 252. Dr. TOMBOULIAN. Laboratory fee, \$5.

(c) Credit one hour. Problem work. Sat., 8:30-11. *Rockefeller* 252. Dr. TOMBOULIAN.

*S 11. **Introductory Experimental Physics.** Credit four hours. Parts (a), (b), and (c) of S 3, which constitute the complete work of Physics 11 of the regular school year.

*S 12. **Introductory Experimental Physics.** Credit four hours. Parts (a), (b), and (c) of S 4, which constitute the complete work of Physics 12 of the regular school year.

S 60. **Intermediate Laboratory Physics.** Credit one to three hours. Prerequisites, an introductory course in College Physics and Mathematics 3 or the equivalent. The laboratory will be open daily except Sat., 1:40-4. *Rockefeller* 352. Professor COLLINS and Assistant Professor PARRATT. Laboratory fee, \$5 for each laboratory credit hour.

Experiments in mechanics, properties of matter, heat, sound, light, and electricity may be performed. The experiments will be chosen to meet the needs and previous experience of the individual student. Suitable to accompany courses S 61 and S 62.

S 61. **General Physics.** Credit two hours. Prerequisites, an introductory course in College Physics and Mathematics S 3, or the equivalent. Daily except Sat., 8. *Rockefeller* 106. Assistant Professor BARNES.

Classroom work covering electricity and light.

This course is intended for those students who desire a more detailed study of some of the fundamentals of electricity and light than is made in the beginning courses in college physics.

[S 62. **General Physics.** Credit two hours. Prerequisites, same as for S 61. Classroom work covering properties of matter, sound, and heat. Not given in 1939. Planned for 1940.]

S 81. **Recent Developments in Physics.** Credit two hours. Prerequisite, a second year course in college physics or simultaneous registration in such a course. Daily except Sat., 9. *Rockefeller* 106. Dr. TOMBOULIAN.

An introductory survey of advances in physics since 1895; including such topics as photoelectricity, thermionics, quantum theory, atomic spectra, x-rays, radioactivity, isotopes, cosmic rays, and nuclear physics.

S 106. **Advanced Laboratory Physics.** Credit one to three hours. Prerequisites, Physics S 60, S 61, S 62 and Mathematics S 5 or their equivalents. Assistant Professor PARRATT and Professor COLLINS. Laboratory open daily except Sat., 1:40-4. *Rockefeller* 301. Laboratory fee, \$5 for each laboratory credit hour.

The experiments will be chosen to meet the needs and previous experience of the individual student. Apparatus and equipment are available for work in a wide variety of fields, such as: optics, spectroscopy, x-rays, electrical measurements, electronics, and high temperature measurements. The experiments may

be brief so that a wide range of topics will be covered, or a longer time may be spent on each of a relatively few experiments.

S 115. Molecular Physics. Credit two hours. Prerequisites, Physics S 62 and Mathematics S 5 or their equivalents. Daily except Sat., 11. *Rockefeller* 109. Professor COLLINS.

Mechanics of a particle, surface tension, elasticity, kinetic theory, molecular energies, specific heats, molecular spectra.

S 125. Electric and Magnetic Fields. Credit three hours. Prerequisites, Physics S 60, S 61 and Mathematics S 5 or their equivalents. Daily 10, and one additional hour to be arranged. *Rockefeller* 107. Assistant Professor PARRATT.

Electrostatic, magnetostatic and electromagnetic fields; electromagnetic electromotive force; variable and alternating current phenomena, and electric oscillations.

[S 126. Electrical Conduction and Related Phenomena. Credit two hours. Prerequisites, same as for S 125. **Not given in 1939. Planned for 1940.]**

[S 136. Optics and Spectroscopy. Credit three hours. Prerequisites, same as for S 125. **Not given in 1939. Planned for 1940.]**

****S 304. Kinetic Theory of Gases.** Credit two hours. Prerequisites, general courses in physics and calculus. Daily except Sat., 11. *Rockefeller* 104. Professor KENNARD.

Molecular motion, pressure, viscosity and other transport phenomena, specific heats, radiometer and other low-pressure phenomena, Brownian motion.

****S 315. Special Topics for Investigation.** Students who are prepared to profit by the use of the library and laboratory facilities of the Department in the study of some special topic or in investigation will be given an opportunity to do so. This work may be taken in connection with or independently of any of the above courses and will be under the direction of one or more members of the staff, with whom frequent conferences should be arranged. Credit varies with the nature and amount of work done. Students interested are advised to correspond with Professor COLLINS.

****S 340. Statistical Mechanics.** Credit two hours. Prerequisites, general courses in physics and calculus. Daily except Sat., 9. *Rockefeller* 104. Professor KENNARD.

A discussion of the principles and methods of statistical mechanics and of their application to a variety of problems in the theory of gases, classical and degenerate, ionization, electrons in metals, and the relation of entropy to probability.

Colloquium. Reports and discussions of recent work in physics. M, 4:30. *Rockefeller* C.

ENGINEERING

The courses in engineering described below are equal in character to corresponding courses given in the COLLEGE OF ENGINEERING during the regular session. They will be accepted for credit towards graduation by the several schools of the college so far as they apply to the prescribed work of the school concerned. Students in the College of Engineering who may desire to offer work done in the Summer Session toward graduation should consult the Director of the School in which they are regularly registered before registering in the Summer Session. Others may obtain information concerning these courses by applying to the Secretary of the College of Engineering.

ADMINISTRATIVE ENGINEERING

S 3A23. Business and Industrial Management. Credit two or three hours. Daily except Sat., 12. One afternoon to be arranged for those desiring three hours credit. *West Sibley* 2. Professor BANGS and Assistant Professor HANSELMAN.

A survey of the problems of business and industrial management designed for administrative engineering students, although of considerable importance and open to any one interested in the problems of modern business. This rapidly growing field is concerned with business policies, types of business ownership, and includes the major functions of marketing, production, finance, and accounting. Major consideration is also given to the selection of personnel and to study of modern advertising.

One of the features of the course is the designing of an advertising portfolio and a critical study of the relationship of advertising to the modern organization.

***S 3A31. First Course in Accounting.** Credit three hours. Daily except Sat., 11. Two practice periods per week to be arranged. *West Sibley 2.* Professor BANGS and Assistant Professor HANSELMAN.

Theory of debit and credit; the journal and ledger; the preparation of balance sheets and income statements; special journals; balance sheet analysis; financial mathematics—the use of compound interest tables; bond valuation; sinking funds.

ELECTRICAL ENGINEERING

***S 415. Principles of Electrical Engineering.** Credit three hours. Lectures, daily except Sat., 9. Computations, M W F, 10–1. Prerequisites, Physics 11 and 12, Mathematics 5a and 5b, or the equivalent. *Franklin.* Assistant Professor STRONG.

Equivalent to E.E. 415. Elementary DC circuit and machine theory.

***S 415a. Principles of Electrical Engineering.** Credit one hour. T Th, 10–1. *Franklin.* Assistant Professor STRONG.

Laboratory work to accompany S 415. The two courses when taken together are equivalent to E.E. 405.

***S 416. Principles of Electrical Engineering.** Credit three hours. Lectures, daily except Sat., 8; computations, M W F, 10–1. Prerequisite, E.E. 415 or the equivalent. *Franklin.* Assistant Professor STRONG.

Equivalent to E.E. 416. Elementary alternating current circuit and machine theory.

***S 416a. Principles of Electrical Engineering.** Credit one hour. T Th, 10–1. *Franklin.* Assistant Professor STRONG.

Laboratory work to accompany S 416. The two courses when taken together are equivalent to E.E. 406.

ENGINEERING DRAWING

***S 120. Drawing and Descriptive Geometry.** Credit three hours. Recitations, lectures, and drawing board work. M W, 9–11, and four additional two and one-half hour drawing periods per week. *East Sibley.* Assistant Professor CLEARY.

Coordinated instruction in subjects prerequisite to a study of the engineering applications of drawing. The fundamental drafting arts. Geometric analysis and composition of structures including considerations of: the elements of structure and their properties, interspace relations of structural elements and determinants of elements. Graphic computation and description of the geometric qualities and quantities of structure.

***S 121. Mechanical Drafting.** Credit three hours. Recitations, lectures, and drawing board work. M W, 1:40–4, and four additional two and one-half hour drawing periods per week. *East Sibley.* Assistant Professor CLEARY.

Basic studies of the functional and structural divisions of machines, structural standards and shop methods of producing structural qualities and quantities are coordinated in this course with instruction and drill in the fundamental techniques of determining machine structure by layouts and specifying structural information on working drawings in a manner consistent with both the convenience of the shop and the need of restricting the accumulation of production errors. Free-

hand sketching, pictorial drawing, tracing, etc. are studied and applied in this work.

*S 125. **Mechanical Drawing.** Credit three hours. Recitations, lectures, and drawing board work. T Th, 1:40-4, and four additional two and one-half hour drawing periods per week. *East Sibley*. Assistant Professor CLEARY.

A brief course in the basic subjects of drawing and the techniques of applying these subjects to the determination of structure by layouts and the specification of structure on working drawings.

EXPERIMENTAL MECHANICAL ENGINEERING

S 3X21. **Materials of Engineering.** Credit three hours. Lectures daily except Sat., 12, and Wed., 1:40-4. *West Sibley* 1. Prerequisite, General Chemistry 106, or the equivalent. Professor DAVIS and Assistant Professor JEFFREY.

An elementary lecture course in engineering materials covering fuels and their combustion, refractories, metallurgy of iron and steel, and the constitution of metals and alloys; with outside reading required on wood, stone, brick, cementing materials and concrete.

S 3X31. **Materials Testing and Physical Metallurgy.** Credit four hours. Prerequisites, Engineering Materials 3X21, Theoretical and Applied Mechanics 3M21, Strength of Materials 3M22a, or the equivalent. Courses S 3X21 and S 3X31 may be taken concurrently. Lectures, daily except Sat., 10-12. Laboratory, daily except Sat., 1:40-4. Two lectures and two laboratory periods a week as assigned. *Mechanical Laboratory*. Professor DAVIS and Assistant Professors JEFFREY and MOYNIHAN.

A laboratory course dealing with: the determination of physical properties of materials (principally metals and alloys) by means of various physical tests; a study of the behavior of materials in different kinds of loading; the selection of materials for a given use based upon the physical properties; the control of physical properties of ferrous and non-ferrous alloys by various forms of thermal and mechanical treatments, with emphasis on the relationship between the phase changes, the microstructure and physical properties. A written report is required on each experiment.

S 3X101. **Materials and Processes of Industry.** Credit four hours. Daily except Sat., 8-10. Two lectures and two laboratory periods per week as assigned. *Mechanical Laboratory*. Professor DAVIS and Assistant Professors JEFFREY and MOYNIHAN.

The course is based on a knowledge of science as represented by introductory college courses in physics and general chemistry, and college mathematics through algebra and trigonometry.

It is the primary purpose of this course to meet the needs of teachers of Industrial Arts. The course includes: the testing of materials, principally metals and alloys; the use of testing machines and other instruments for the determination of the physical properties of materials; a study of the internal structure of materials by microscopic examination; the control of properties by various mechanical and thermal processes; the industrial fabrication and processing of materials; the selection of materials with particular reference to their use in industry. The course work will be supplemented by visits to nearby industrial plants.

MECHANICS OF ENGINEERING

The following courses in Mechanics of Engineering are open to students from other universities, subject to the same requirements for admission as are made for Cornell students.

*S 3M22a. **Strength of Materials.** Credit three hours. Prerequisite, Theoretical and Applied Mechanics, 3M21, or equivalent. Daily, 8, Sat., 10, and one computing period, Fri., 10 to 12:20 or 1:40 to 4. *West Sibley* 310. Professor CORNELL and Mr. LEE.

Stress, strain; strength and elastic properties of materials in tension, compression, and shearing; riveted joints; torsion of shafts; helical springs; shear; moment, safe loading, and deflection of simple beams; eccentric loads; columns; impact loads.

*S 3M23. **Hydraulics.** Credit two hours. Prerequisite, Theoretical and Applied Mechanics, 3M21, or equivalent. Daily except Sat., 10. *West Sibley* 312. Professor CORNELL.

Hydrostatics: pressures and centers of pressure. Hydrokinetics: general equations of energies; orifices, weirs, nozzles, Venturi meters, etc.; losses of head; flow in pipe. Hydro-dynamics: forces on stationary and moving bodies.

*S 3M24. **Applied Mathematics.** Credit three hours. Prerequisite, Theoretical and Applied Mechanics, 3M21, and Strength of Materials, 3M22a, or equivalent, but may be taken concurrently with S 3M22a. Daily, 9, Sat., 11, and one computing period, Fri., 10 to 12:20 or 1:40 to 4. *West Sibley* 312. Professor CORNELL and Mr. LEE.

Curve plotting, choice of coordinates and scale, straight line plotting of simple equations; logarithmic plotting; fitting empirical equations to experimental data; first and second order differential equations; vibration problems in engineering; linear, torsional, and flexural vibrations without and with damping; forced vibrations; critical speeds; problems with two degrees of freedom.

STRUCTURAL ENGINEERING

*S 270. **Structural Analysis and Design.** Credit four hours. Prerequisite, C.E. 220, 221. Lectures and recitations, daily except Sat., 8; computations and drawings at hours to be assigned. *Lincoln* 14 and 29. Assistant Professor BURROWS.

One-fourth of the course includes structural details, i.e., the design of a wooden roof truss and other timber joints. The remainder of the course includes dead load, live load, and impact stresses in simple bridge trusses due to uniform live panel loads, locomotive axle loads, and highway loads. Text: Urquhart and O'Rourke, *Stresses in Simple Structures*.

*S 271. **Structural Design.** Credit three hours. Prerequisite, C.E. 270. Lectures, computations, and drawing. Daily, 9-11. *Lincoln* 14. Assistant Professor BURROWS.

An elementary course in steel design. Complete design, detail drawing, bill of material, and estimate of weight of a steel roof truss, a thorough plate girder railroad bridge. Floor systems of highway bridges. Text: Urquhart and O'Rourke, *Design of Steel Structures*.

S 272. **Advanced Structural Analysis.** Credit three hours. Prerequisite, C.E. 270. Daily except Sat., 8. *Lincoln* 21. Professor URQUHART.

Stress analysis of continuous beams, framed bents and rigid frames. Horizontal as well as vertical loading considered. Redundant structures including the braced two hinged arch. Displacement diagrams for trusses and arches and analytical computation of deflections of such structures.

S 274. **Bridge Design.** Credit three hours. Prerequisite, C.E. 271. Computation and drawing, daily, 11-12:50. *Lincoln* 14. Assistant Professor BURROWS.

Computations and drawing for the complete design of a riveted railroad or highway bridge. The computations to determine the sections of all members, joints, splices, and other details are to be written up in systematically arranged reports. The drawing consists of general plans showing the location of all rivets as well as the composition and relation of all members and connections. The final reports are to give a full list of shapes and plates, and a classified analysis of weight for the span.

*S 280. **Concrete Construction.** Credit three hours. Prerequisite, C.E. 220, 221. Daily, 9-10:30. *Lincoln* 21. Professor URQUHART.

Concrete materials, properties of plain concrete, its making and deposition; elementary theory of reinforced concrete as applied to columns, rectangular

beams, and slabs; T-beams reinforced for compression; direct stress combined with flexure; retaining walls. Text: Urquhart and O'Rourke, *Design of Concrete Structures*.

S 285. **Reinforced Concrete Design.** Credit three hours. Prerequisite, C.E. 280. Daily except Sat., 11-12:30. *Lincoln* 21. Professor URQUHART.

Design of multiple column footings of reinforced concrete. I-beam grillages. Design of bins and tanks: subsurface and supported on towers. Shortspan bridges. Reports and sketches.

S 291. **Structural Engineering Design. Credit three hours. Hours by arrangement. Professor URQUHART.

Advanced work in design of concrete or steel structures. The nature of the work depends upon the student and the number of students desiring such work.

AGRICULTURE

In addition to the following technical courses, the NEW YORK STATE COLLEGE OF AGRICULTURE also offers courses in Rural Sociology, Rural Education, Meteorology, and the various Biological Sciences. For these courses, see the appropriate division, or consult the Index at the end of this Announcement.

AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

A 81. **Economics of Enterprise.** Credit two hours. Daily except Sat., 9. *Warren* 225. Assistant Professor KENDRICK.

Intended for mature students in any field who desire an acquaintance with the fundamentals of economic theory.

A 115. **Prices.** Credit three hours. Lectures, daily except Sat., 8. *Warren* 140. Laboratory, W, 1:40-4. *Warren* 140. Assistant Professor HURD.

A study of price movements and factors affecting them. Emphasis is placed upon agricultural prices and their relation to other prices. Attention is given to index numbers, seasonal variations, cycles, secular trends, the history of prices, physical volume of production, and the relation of gold to prices. Fee for materials, \$2.

A 138. **Taxation.** Credit two hours. Lectures, daily except Sat., 10. *Warren* 225. Assistant Professor KENDRICK.

A study of the principles and practices of public finance with emphasis on taxation. Among the topics examined are: the growth of public expenditures; the changing pattern of federal, state, and local taxation; general property; personal income, inheritance, business, commodity, and motor vehicle taxation; the incidence of taxation; relations among taxing units; and the problem of developing a system of taxation. Fee for materials, \$2.

A 141. **Marketing Farm Products.** Credit three hours. Lectures, daily except Sat., 9. *Warren* 125. Laboratory, M Th, 1:40-4. *Warren* 140. Professor HARPER.

A study of problems in the marketing of farm products. Fee for materials, \$2.

A 202. **Farm Management.** Credit three hours. Lectures, daily except Sat., 11. *Warren* 101. Laboratory, T, 1:40-4, Sat., 8-12:30. *Warren* 101. Field trips will be taken to farms in nearby regions during most of the laboratory periods. Professor HART.

A special course intended primarily for high school teachers, county agricultural agents and others who have had previous training in farm management and now wish a review of the field, together with instruction in selection and preparation of farm management and agricultural economic material for teaching purposes. Emphasis will be placed on farming as a business, factors affecting farm incomes, use of capital and credit, the organization and management of specific farm businesses, and the keeping and interpretation of farm records and accounts. Fee for materials, \$2; for transportation, \$4; total, \$6.

AGRICULTURAL ENGINEERING

A 40c. **Advanced General Farm Shop.** Credit three hours for three special units of two weeks each. Units may be taken separately for one hour of credit each. Daily except Sat., 10-12. *Agricultural Engineering Laboratory.* Assistant Professor WRIGHT.

These courses are designed primarily for teachers of agriculture who are giving the work as part of the shop courses in high schools or who are conducting extension work. The preparation of job sheets will be a part of the instruction.

Unit 1. July 5-17. **Plumbing and its Application to the Home and Farm.**

A study of: (1) plumbing systems; (2) plumbing materials, including fixtures, pipe, fittings, etc.; (3) various types of domestic water systems. Practice to give skill in plumbing operations. Laboratory fee, \$1.

Unit 2. July 18-28. **Automobiles and their Engines.**

A study of: (1) the principles of operation, care, and repair of automobile engines; (2) the general structure and principles of operation of the various automobile units, including modern features; (3) the servicing of cars, such as lubrication, battery care, tires, etc. Laboratory fee, \$1.

Unit 3. July 31-August 11. **Household Mechanics.**

A study of and practice in methods of servicing and repairing various types of household equipment such as pumps, water-systems, faucets, valves, heating plant, electrical devices, refrigerators, washing machines, sewing machines, cutting tools, etc. Laboratory fee, \$1.

*A 41. **General Shop Work for Rural High-School Teachers.** Credit three hours. T Th, 1:40-4:45 and Sat., 8-12. *Agricultural Engineering Laboratory.* Professor ROEHL.

Practical jobs to develop skill in woodworking, saw filing, tool grinding, handle fitting, harness repairing, rope work, cold metal working, farm blacksmithing, painting and glazing, furniture repairing, and refinishing, as suited to the needs of rural communities.

A course for teachers of agriculture and general shop work in rural high schools. Designed to develop skill in performance. Laboratory fee, \$3.

A 43. **Field Machinery Repair.** Credit three hours for three special units of two weeks each. Units may be taken separately for one hour of credit each. M W F, 1:40-4:45. *Agricultural Engineering Laboratory.* Professor ROEHL and Assistant Professor JENNINGS.

This course is intended to prepare men to teach the repairing of farm machinery as part of the shop work in Vocational Agriculture.

Unit 1. July 5-17. A study of the care, repair, and operation of plows, cultivators, and other tillage machinery, with the emphasis on practical repair and maintenance. Laboratory fee, \$1.

Unit 2. July 18-28. A study of the care, repair, and operation of mowers, binders, and other harvesting machinery with the emphasis on practical care and maintenance. Laboratory fee, \$1.

Unit 3. July 31-August 11. A study of the care, repair, and operation of planters, drills, and other seeding machinery, with the emphasis on practical repair and maintenance. Laboratory fee, \$1.

A 44a. **Industrial Arts General Shop.** Credit four hours; two hours by special permission. Registration limited to twenty-five. Daily except Sat., 1-5. *Junior High School Laboratories* 102 and 110. Mr. BECKER.

A general course for teachers of agriculture who desire to qualify for the part-time teaching of industrial arts in the secondary school. The New York State Course of Study for Industrial Arts I (Comprehensive General Shop) will be used as a basis. Each student participates in the regular work, organization, and administration of the shop work. Wood, art metal, machine, ornamental iron, electricity, soft metal casting, etc., will constitute the course. This should be accompanied by Rural Education A 142a. Laboratory fee, \$4 and \$2.

A 44b. **Industrial Arts Wood Shop.** Credit two hours. Registration limited to twenty-five. Daily except Sat., 1-3. *Senior High School Laboratory* 13. Mr. RODEN.

A limited general shop course which compares favorably with New York State Course of Study for Industrial Arts II (General Wood Shop). Job participation will be divided into the grades represented by the Course of Study and each student will participate in all activities represented by that grade level. Related information, shop organization, and administration will form the basis of discussion and participation. Laboratory fee, \$2.

A 44c. **Industrial Arts Metal Shop.** Credit two hours. Registration limited to twenty-five. Daily except Sat., 8-10. *Junior High School Laboratory 110.* Mr. AHR.

A limited general shop course which compares favorably with New York State Course of Study for Industrial Arts III (General Metal Shop). Organized somewhat similarly to A 44b. Each student will participate in the activities of auto, foundry, forge, ornamental iron, sheet metal, art metal, machine shop, etc. Related information, shop organization, and administration will form the basis of discussion and participation. Laboratory fee, \$2.

A 44d. **Industrial Arts Electrical Shop.** Credit two hours. Registration limited to twenty-five. Daily except Sat., 10-12. *Junior High School Laboratory 102.* Mr. RODEN.

A limited general shop course which compares favorably with New York State Course of Study for Industrial Arts IV (General Electrical Shop). Organized somewhat similarly to A 44b. Here electrical fundamentals and related work discussion is based largely upon job and project construction, similar to its teaching in Industrial Arts courses. Related information, shop organization and information will form the basis of discussion and participation. Laboratory fee, \$2.

A 49. **Welding.** Credit one hour. Prerequisite, permission to register. Practice by appointment. *Agricultural Engineering Laboratory.* Professor JENNINGS and Mr. CLOUGH.

Training in oxy-acetylene welding and electric welding with both alternating and direct current machines. Laboratory fee, \$5.

A 101a. **Electricity and Its Application to the Home and Farm.** Credit three hours for three special units of two weeks each. Units may be taken separately for one hour of credit, provided the first unit precedes the second and the first two precede the third. M W F, 1:40-4:45, and one extra hour each week. *Agricultural Engineering Laboratory.* Assistant Professor WRIGHT.

Unit 1. July 5-17. A study of elementary electricity, dry cell and storage batteries, elementary wiring, lighting and power circuits, switching circuits, burglar alarms, wiring materials, wiring code rules. Laboratory fee, \$1.

Unit 2. July 18-28. A study of house wiring, including the actual wiring of a small building, heating appliances, motor appliances, illumination and illuminating equipment including portable lamps, and power distribution systems. Laboratory fee, \$2.

Unit 3. July 31-August 11. Electric motors and generators. A study of types of motors and generators commonly used on the farm and in the home together with their various applications. Opportunity will be given to build small motors and generators as a means of learning the principles of operation. Considerable time will be given to such matters as the selection, installation, and servicing of these machines. Laboratory fee, \$1.

A 240. **Shop Organization and Management.** Credit two hours. Daily except Sat., 9. *Agricultural Engineering Laboratory.* Professor ROEHL.

A course designed for teachers of agriculture and general shop practices, village principals, and others who have responsibilities for teaching and supervising shop work in central schools and rural high schools. A course dealing with objectives, shop curriculum, plans of shops, designs of home-made equipment such as work-benches, tool and storage cabinets, lumber and iron racks, etc.; shop tools and supplies; shop management; the demonstration and job sheet methods of teaching. Students will be permitted to work on individual problems by arrangement.

A 251. **Special Problems in Agricultural Engineering.** Credit one or more hours. Prerequisite, adequate ability and training for the work proposed, and permission to register. Professors and assistant professors of the department.

Special work in any branch of agricultural engineering on problems under investigation by the department and of special interest to the student; provided, in the latter case, that adequate facilities can be obtained. Laboratory fee as arranged.

FLORICULTURE AND ORNAMENTAL HORTICULTURE

*A 2. **Amateur Floriculture.** Credit one hour. Lectures, W Th, 11. *Plant Science* 37. Laboratory, F, 1:40-4:30. *Plant Science* 15. Miss SMITH.

An elementary course, designed especially for those who do not wish to major in floriculture but who wish a practical knowledge of the culture and use of plants indoors and in the amateur garden. Laboratory fee, \$1.

A 3. **Herbaceous Plant Materials.** Credit two hours. Lectures, M T W Th, 8. *Plant Science* 37. Laboratory, W Th, 1:40-4:30. *Plant Science* 15, and *Gardens*. Dr. ALLEN.

A study of the ornamental herbaceous plants used in landscape and garden plantings. Emphasis is placed on the identification, uses, and culture of annuals and summer flowering perennials. Problems in garden maintenance are considered. All members of the class must participate in an excursion on August 4 and 5 to visit private estates and public parks in Rochester. Laboratory fee, \$3; transportation fee, \$5.

*A 4. **Planning and Planting the Home Grounds.** Credit two hours. Lectures, T W Th, 12; *Plant Science* 37. Laboratories, W Th, 9-12, and one additional period; *Plant Science* 433. Acting Professor PORTER and Mr. REICH.

A brief course covering the fundamental principles of landscape planning and planting as related to our smaller residence properties. Not a technical course; open for general election. Students will need a set of drawing instruments. Registration limited to sixteen. Members of the class participate in an excursion on August 4 and 5 to visit private estates and public parks in Canandaigua and Rochester. The transportation charge will be \$5. Laboratory fee, \$3.

*A 5. **Flower Arrangement.** Credit one hour. Lecture, M, 12. Practice, M T, 1:40-4:30. *Plant Science* 22. Miss SMITH.

A study of the principles and methods of arranging flowers and plants for decorative use in the home and for public functions. Registration limited to twenty. Laboratory fee, \$5.

A 8. **Woody Plant Materials for Landscape Planting.** Credit four hours. Lectures, M T W Th, 9. Laboratory and field trip, M T, 10-12:30, 1:40-4:30. *Plant Science* 37 and *Campus*. Professor CURTIS.

A study of the characteristics and requirements of trees, shrubs, and vines for landscape planting. The laboratories and field trips enable the student to recognize common woody plants. The lectures discuss planting areas, planting practices, and plant materials, in order that the student may learn to see plants not only as growing things but as possible units in designs with which he may be able to improve his surroundings. All members of the class must participate in an excursion on August 4 and 5 to visit private estates and public parks in Rochester. The transportation charge will be \$5. Laboratory fee, \$3.

A 109. **Summer Propagation.** Credit two hours. Lectures, W Th, 8. *Plant Science* 29. Laboratories, T W, 1:40-4:30. *Greenhouses and Nurseries*. Assistant Professor HUNN.

Intended for students who have had the beginning course in propagation. Advantage is taken of the summer months to amplify courses in propagation by intensive practice in the summer production of soft wood cuttings and the budding of nursery stocks. This will include the management of hot beds and the lining-out system followed in the production of stock plants. Two extra hours a week are required for care of hot beds. Two one day trips are planned for visits to producing nurseries on July 11 and August 1. Laboratory fee, \$3.

NOTE: Courses A 118, A 162, and A 171 are offered to practicing nurserymen, park and estate superintendents, landscape engineers and architects, and to advanced students in horticulture and landscape gardening.

Courses A 118 and A 171 taken together constitute a full summer program. Either course may be taken separately or may be combined with other courses offered by the College or Department.

Application for admission to these courses should be made as early as possible as registration is limited.

A 118. **Landscape Construction.** Credit four hours. Prerequisite permission to register. Lectures, T W Th, 9. *Plant Science* 141. Laboratories, M W Th, 1:40-4:30; F, 8-12:50 and 1:40-4:30; S, 8-12:50. *Practice fields.* Acting Professor PORTER and Mr. REICH.

A course covering the construction problems of the service departments of nursery landscape firms, landscape contractors, greenkeepers, and park superintendents. Studies, estimates, and the practice of grading, earthwork, walls, terraces, steps, pools, and the like. Several trips to visit work under construction will be required. Laboratory fee, \$8.

A 162. **Special Problems.** Credit and hours by arrangement. Professors CURTIS and PORTER and Assistant Professor HUNN.

Special problems in plant materials, nursery, and landscape work may be elected by qualified students with the permission of the instructors. Laboratory fee dependent upon the nature of the problem.

A 171. **Tree and Shrub Management.** Credit three hours. Prerequisite, permission to register. Lectures, M T, 8. *Plant Science* 29; W Th, 10, *Plant Science* 37; laboratories, M, 9-12:50, T, 10-12:50 and 1:40-4:30, W Th, 11-12:50. *Plant Science* 40 and *Nurseries.* Assistant Professor HUNN and others.

A study of the principles and practices employed in the transplanting and maintenance of woody plants including fertilizing, pruning, spraying, big tree moving, and a discussion of special plants for special places.

FORESTRY

A 5. **Forest Conservation and the Handling of Farm Woodlands.** Credit two hours. Daily except Sat., 10. *Fernow* 122. Three half day field trips on Saturdays required. Professor RECKNAGEL.

Lectures and field work designed for teachers of general science, of nature study, and of vocational agriculture as well as for others interested in the forestry aspects of Conservation. Forestry in the conservation of natural resources and the practice of forestry on farm woodlands, including reforestation.

HOME ECONOMICS

The Summer Session courses in the NEW YORK STATE COLLEGE OF HOME ECONOMICS are planned primarily to meet the needs of teachers, extension workers, and other persons dealing with problems in homemaking who wish to broaden and strengthen their home economics background and thus to be able to meet more adequately the needs of the situations in which they work.

All courses are given in *Martha Van Rensselaer Hall.*

ECONOMICS OF THE HOUSEHOLD AND HOUSEHOLD MANAGEMENT

E 112. **Management in Relation to Family Living. Credit three hours. Discussions, laboratory, and field trips, M W, 2-5; F, 2. *Room* G-19. Assistant Professor CUSHMAN, Miss WIESENDANGER, and Miss KNOWLES.

This course is for teachers, extension workers, social workers, home service representatives, and homemakers who wish help in understanding the process of management, and opportunity for practice of this process. The emphasis is on management of resources as they relate to time and energy. Students will gain experience in recognizing and analyzing their own management problems. They

will visit homes, schools, and community centers to see how certain families and groups of people manage differently to achieve their individual purposes. Laboratory work will consist of cooperation with families and other groups in the study of tasks. Trial work centers will be set up with portable equipment to help in determining the most satisfactory way of performing these tasks in each individual case. Students will be given opportunity to develop their own ideas and to use initiative in working out procedures and materials helpful in meeting their vocational problems in management. Fee, \$8.50, including transportation.

****E 120. Management Aspects of Household Equipment.** Credit two hours. Prerequisite or parallel, Economics of the Household 112. Discussions and field trips, T Th, 2-4, F, 3. *Room G-19.* Miss KNOWLES and Miss FREEMAN.

This course is for teachers, extension workers, social workers, home service representatives, and homemakers. It includes a study of variations in the types and quality of household equipment in relation to individual situations, and the management involved in selection, care, use, and repair. Discussions will be held with homemakers, manufacturers, distributors, engineers, and other specialists in the field. Trips will be made to Ithaca homes where different kinds of equipment are in use and to commercial agencies where various types of equipment will be demonstrated. Field trips will be taken during class periods. Fee, \$5.

This course may well be supplemented by course A 40c, Unit 3, in Agricultural Engineering.

FAMILY LIFE

E 101. Principles of Child Guidance. Elementary course. Credit two hours. Prerequisite or parallel, psychology of childhood and adolescence. Discussions, daily except Sat., 8. *Room 124.* Nursery School observations, one hour daily except Sat.; hours to be arranged with the instructor during registration. Professor WARING and Assistant Professor REEVES.

Application of psychology in the learnings of young children as the basis for developing guidance practices of adults. Observations in the Nursery School are arranged at different hours each day in order to include typical activities. Laboratory fee, \$5.

E 116. Parent Education in a Family Life Program. Credit two hours. Daily except Sat., 9. *Room 121.* Professor WYLIE.

A study will be made of materials available for use by groups of parents and other adults in their attempts to understand the problems in family relationships. Fee, \$2.50.

E 117s. Family Experience and Personality Development. Credit two hours. Two sections, daily except Sat., 8 or 10. *Room 121.* Assistant Professor ENTORF.

This course will deal with the influence of family experience on the growth of personality and the variety of ways in which individuals adjust to typical life situations. Fee, \$2.50.

This course may well be supplemented by courses A 249a or A 263 in Rural Education.

E 118. Family and Social Relationships. Credit two hours. Limited to thirty students. Lectures, discussions, and conference periods on special problems. Daily except Sat., 9. *Room 124.* Professor ROCKWOOD.

This course is planned especially for teachers of family and social relationships at the secondary school and college levels. The experiences of many kinds of families will be used to illuminate the sources of conflicts and adjustments of family members in our culture. The present family and social relationships of young people and the adjustments of early marriage will be considered in the light of cultural values and of the young adult's early experience in the family. Fee, \$2.50.

This course may well be supplemented by courses A 249a or A 263 in Rural Education.

****E 215. Research Studies in Family Life.** Credit one or two hours.

Registration by permission of the instructor. Hours by arrangement. Professor WARING and Professor ROCKWOOD.

The purpose of the course is to offer to a limited number of qualified graduate students an opportunity for research in Family Life.

E 220. Participation in the Nursery School. Credit two or three hours. Limited to ten students. Open to home economics teachers, and other students with qualifications satisfactory to the instructor. Prerequisites, child psychology and an elementary course in behavior. For each hour of credit, there is required a total of thirty hours of supervised participation in the Nursery School and several conferences each week with the teaching staff. Laboratory hours to be arranged. Conference, daily except Sat., 12. Room 124. Assistant Professor REEVES.

Participation in the Nursery School is designed to be an experience in group living, for adults and children. The opportunity to participate with young children in the Nursery School not only helps students to understand children and their behavior and guidance, but it may also help them to understand themselves, their students, their friends, and family members. It contributes subject matter in child care and training and gives practice in guiding and interpreting a child activity program, in working with staff members concerned with all aspects of child development, and in cooperating with parents in the promotion of child welfare. Laboratory fee, \$5.

E 220x. Planning and Organizing Neighborhood Play Groups. Credit two hours. Limited to ten students. Open to home economics teachers, and other students with qualifications satisfactory to the instructor. Prerequisites, child psychology and an elementary course in behavior. For each hour of credit, there is required a total of thirty hours of supervised participation in the play group and several conferences each week with the teaching staff. Laboratory hours to be arranged. Conference, daily except Sat., 12. Room 121. Professor FOWLER.

The first two weeks of the summer session will be given to work with parents, in organizing a group of children and parents, and equipping a backyard for use, and planning a tentative program of activities. During the last four weeks the play group will be in session daily, thus giving students experience in living with the children, in watching their development, and in evaluating with the parents the shared experience.

This is a demonstration of the kind of play group which might be set up in cooperation with parents in any community where there is qualified supervision. Fee, \$5.

****E 225b. Seminar in Family Life with Special Consideration of the Adult in Family and Social Relationships.** Credit two hours. Limited to twenty-five graduate students; primarily for those looking forward to leadership in a family life program. M W F, 2-4. Room 121. Instructor will be available for individual conferences. Professor WYLIE. Fee, \$2.50.

Tentative list of courses to be offered in the Department of Family Life in the next two Summer Sessions:

1940

E 101. Principles of Child Guidance. Elementary course.

E 115. Family Relationships.

E 117. Family Experience and Personality Development.

E 214. Research Studies in Family Life.

E 220. Participation in the Nursery School.

E 225c. Seminar in Family Life with Special Consideration of the Child of Pre-School and School Age in Family and Social Relationships.

1941

E 101. Principles of Child Guidance. Elementary course.

E 117. Family Experience and Personality Development.

E 214. Research Studies in Family Life.

E 220. Participation in the Nursery School.

E 225a. Seminar in Family Life with Special Consideration of the Adolescent in Family and Social Relationships.

FOODS AND NUTRITION

E 111. Meal Planning, Preparation, and Service. Credit two hours. Prerequisite, elementary courses in food preparation and nutrition. Limited to sixteen students. Lectures and discussions, T Th, 11. Room 343. Laboratory, M W F, 11-1:30. Room 361. Mrs. JANSSEN.

This course is designed primarily for teachers and extension workers. Consideration will be given to problems involved in the purchase of food and in planning, preparation, and serving of meals. Emphasis on organization and management of time and energy. Trips to nearby pottery and silver factories. Approximate cost of trips, \$2. Fee, \$15.

E 112s. The Scientific Aspect of Food Preparation. Advanced course. Credit two hours. Prerequisite, a knowledge of food preparation and of general chemistry obtained from recent previous college courses in these subjects. Lectures and discussions, M W F, 2. Room 339. Laboratory or demonstration, T Th, 2-4:30. Room 358. Professor PFUND.

A study of fundamental cookery processes and the means of controlling the nature of cooked products, approached from the point of view of basic scientific principles. The influence of the kind and proportion of ingredients and of methods of manipulation and cookery on the flavor and texture of such foods as meats, vegetables, eggs, baked products and sugar mixtures will be studied. Independent experimentation, organization, and evaluation will be required of students who expect to receive graduate credit for the course. Fee, \$10.

E 114. Food Demonstrations. Credit two hours. Prerequisite, elementary courses in food preparation and nutrition or experience satisfactory to the instructor. Registration limited to eighteen students. Lecture, W, 2. Room 301. Laboratory, M T Th, 2-4:30. Room 361. Mrs. JANSSEN.

This course emphasizes the purposes and techniques of demonstrations in relation to food preparation and nutrition, with application to teaching, extension, business, and social service work. Fee, \$10.

E 121. Food Selection: Nutrition and Dietetics. Credit two hours. Primarily for students who wish to be brought up to date in nutrition but who are not qualified for E 255b; others by permission of instructor. Lectures and discussions, daily except Sat., 9. Room 426. Professor CHANEY.

The purpose of this course is to give an understanding of the significance of food selection in achieving and maintaining health, with emphasis on the nutrition of normal adults. Fee, \$1.

E 145s. Consumer Problems in Buying Foods. Credit two hours. Discussion and laboratory, M W F, 2-4. Rooms 343 and 352. Assistant Professor BRUCHER.

This course is designed to study the problems encountered in buying foods. Topics will include: points in selecting specific food products; problems arising from the wide range in quality of foods and variation in individual purposes and needs; certain factors influencing cost, such as quality, season, waste, quantity; sources of information; government and private regulations and standards. Laboratory fee, \$5.

****E 250. Research in Foods.** Credit and hours to be arranged. Room 357. For graduate students majoring or minoring in foods and having training satisfactory to the instructor. Professor PFUND.

****E 255b. Seminar in Nutrition.** Credit one hour. Registration with permission of the instructor. T Th, 8. Room 301. Conference hours to be arranged. Professor CHANEY.

Readings and reports on selected topics in nutrition, with emphasis on current literature in this field. Fee, \$1.

Tentative list of courses to be offered in the Department of Foods and Nutrition in the next two Summer Sessions:

1940

- E 131. Family Nutrition with Emphasis on Child Nutrition.
- E 145. Consumer Problems in Buying Foods.
- E 150. Special Problems: Nutrition.
- E 202. Experimental Cookery.
- E 255a. Seminar in Foods.

1941

- E 102. The Scientific Aspect of Food Preparation.
- E 123. Advanced Nutrition.
- E 145. Consumer Problems in Buying Foods.
- E 150. Special Problems in Foods and Nutrition.

HOUSEHOLD ART

E 102. **Art Essentials in the Home—Basic Course in Home Furnishing.** Credit two hours. Lectures, discussions, and laboratory, M W, 2-5. Room 408. Assistant Professor SCIDMORE.

This course deals with the application of art to home problems with emphasis on the fundamental considerations involved in furnishing a house for the pleasure and comfort of the family. Study of specific problems in homes is presented through lecture-demonstrations, home visits, and laboratory. Experiments in furnishings will be carried on cooperatively with homemakers in their homes or in the laboratory where a full size duplicate of a house in the community has been constructed for experimental purposes. Estimated cost of trips, \$5. Fee, \$5.

E 104. **Art Essentials—Special Home and Community Problems in Furnishings.** Credit two hours. Prerequisite, E 102, or experience satisfactory to the instructor. Lectures, discussions, and laboratory, T Th, 2-5. Room 408. Assistant Professor SCIDMORE.

This course involves the selection, buying, and use of furniture, textiles, and other furnishings in relation to individual student problems whether in homes, homemaking centers in schools, or other community rooms. Trips will be made to homes, schools, and other buildings of interest, and to stores and factories. Estimated cost of materials and trips, \$5 to \$10. Fee, \$5.

This course may well be supplemented by E 112.

*E 107. **Home Projects in Room Improvement.** Credit two hours. Lectures, discussions, and laboratory: Section I, T Th, 2-5; Section II, W F, 9-12. Room 318. Professor ROMAN.

For teachers and others responsible for developing sound practices in simple home furnishing projects. These projects provide a natural approach and offer a valuable means of enlisting the cooperation of all the family members. Plans will be worked out for simple furnishing of entire rooms; practice will be given in mixing paint and dye; old furniture will be remodeled and some new simple pieces will be constructed. Materials used will be those commonly found in rural and village homes.

Students will be given help in improving their own environment at small cost whether they live in permanent homes, small apartments, or rented rooms. Teachers will be helped to accumulate illustrative materials for their own work. Estimated cost of materials and trips, \$10. Fee, \$3.

E 109. **Consumer Problems in Buying Home Furnishings.** Credit three hours. Registration limited to thirty students. Discussions and laboratory, W F, 2-5. Room 3M14. Assistant Professor WRIGHT.

This course is planned for extension workers and teachers. Consideration will be given to helping consumers shop intelligently through study of home situations, preparation of shopping aids, experience in selecting harmonious furnishings, and knowledge of quality. Appreciation of the wide range of quality and use for specific situations will be gained through trips to factories producing various grades of furnishings; through contacts with local retail stores; and through mail-order catalogues and newspaper advertising. It will be helpful if students will bring advertisements for sales of home furnishings from local news-

papers, sections of mail-order catalogues commonly used, and all possible information in regard to factors that influence local buying practices. Estimated cost of trips and illustrative material, \$10 to \$15. Laboratory fee, \$3.

*E 34. **Refinishing and Reconditioning Furniture.** Credit two hours. Registration limited to twelve students. Laboratory, T Th, 9-12. Room B-10, Workshop. Assistant Professor WRIGHT.

This course is designed to give extension workers and teachers experience in some of the processes used in refinishing, reconstructing, reupholstering, and slip-covering of old furniture at home. Those wishing to apply for enrollment should write to the instructor several weeks in advance of Summer Session for information on furniture and materials to bring or to be loaned for work in class. Estimated cost of tools and materials, \$10 to \$20. Laboratory fee, \$3.

Tentative list of courses to be offered in the Department of Household Art in the next two Summer Sessions:

1940

- E 102. Art Essentials in the Home.
- E 108. Room Rearrangement.
- E 109. Consumer Problems in the Buying of Furniture.
- E 127. Housing from the Standpoint of Home Economics.

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- E 102. Art Essentials — Special Home and Community Problems.
- E 108. Room Rearrangement.
- E 109. Consumer Problems in the Buying of Furniture.
- E 125. House Planning.

TEXTILES AND CLOTHING

E 117. **Advanced Dress Design and Pattern Making.** Credit two hours. Registration by permission of instructor. Lectures and laboratory, daily except Sat, 10-12. Room 215. Mrs. FULLER.

For teachers and other students who have had fundamental courses in clothing construction and art. Emphasis will be given to the experimental and creative aspects of dress design. Designs will be sketched in pencil and color on paper, cut in muslin, and finally in cloth. Dresses are not required to be completely finished and no emphasis will be placed on finishing processes or other elementary techniques. Ideas for design will be developed from modern and historic sources and from experimental manipulation of fabric. Instruction will be given in blackboard drawing, dress and figure illustration to aid the student in expressing her ideas effectively. Estimated cost of materials, \$10 to \$25. Fee, \$5.

E 140. **School and Community Projects in Grooming.** Credit two hours. Registration by permission of the instructor. Laboratory and field practice, T Th, 2-5, F, 3. Room 213. Assistant Professors BUTT and CARNEY.

For teachers and extension and social workers who are interested in developing projects involving improvement of personal appearance. The course will include study, evaluation, and practical application of the subject matter in the field of grooming. Practice will include demonstrations of and experience in the presentation of specific phases of the subject to community groups. Estimated cost of materials and field trips, \$5 to \$10. Fee, \$5.

E 145. **Participation in Community Groups Working on Clothing Projects.** Credit two hours. Prerequisite, elementary clothing selection and construction. Registration by permission of the instructors. Laboratory and field practice, M W, 2-5, F, 2. Room 217. Assistant Professors BUTT and CARNEY.

For teachers and extension workers who wish practical experience in working with community groups on clothing problems involving selection, fitting, and construction. Opportunity will be given in class and through personal conferences to consider the ways of adapting clothing subject matter, developing illustrative materials and evaluating literature dealing with textiles and clothing. Estimated cost of materials and field trips, \$10 to \$15. Fee, \$3.

E 160. **Consumer Problems in Buying Clothing.** Credit three hours. Limited to twenty students. Registration by permission of the instructor. Discussion and laboratory, M W, 2-4; field trips, F, 2-5. Room 215. Mrs. FULLER.

In this course consideration will be given to the personal goals and desires of consumers and to what extent these may be realized through the intelligent purchase, use, and care of clothing. This involves inquiry into the buying practices of consumers, the selling practices of stores, the relationship between the two, and the management problems met by consumers in planning and choosing clothing best suited to satisfy their specific needs and desires. Other topics to be discussed are: relationship of such factors as design, fashion, and construction to the quality and cost of merchandise; labels and trade marks now used for identifying differences in quality of fabric; the possibilities of further extending these guides by action either of the clothing industry or of the government; services offered by retail stores, such as testing bureaus, consultant bureaus, and training of salespeople. Information now available to consumers will be evaluated. Help will be given in the selection of subject matter for individual teaching situations. Trips to stores and factories in Ithaca and nearby towns will be planned. Estimated cost of materials and trips, \$10 to \$15. Fee, \$5.

Tentative list of courses to be offered in the Department of Textiles and Clothing in the next two Summer Sessions:

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- E 110. Designing and Constructing Clothes for Children and Adolescents.
- E 117. Advanced Dress Design and Pattern Making.
- E 142. Clothing Construction.
- E 145. Participation in Community Groups Working on Clothing Projects.
- E 150. Purchasing Household Textiles.
- E 160. Consumer Problems in Buying Clothing.

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- E 117. Advanced Dress Design and Pattern Making.
- E 116. Craftsmanship in Designing Distinctive Details of Clothes.
- E 140. School and Community Projects in Grooming.
- E 145. Participation in Community Groups Working on Clothing Projects.

INSTITUTION MANAGEMENT

E 102s. **Organization, Administration, and Management Problems.** Credit two hours. Prerequisites, elementary courses in institution management and a year or more of practical experience in this field. Lectures, discussions and field trips, M W, 10-11; T Th, 10-12:30. Room G-62. One observation period each week in the Home Economics cafeteria or elsewhere. Professor HARRIS and Miss ROBERTS.

This course is planned for food administrators, dietitians, and institution managers who wish to bring themselves up-to-date in the field. Emphasis will be given to problems of financial management, employer-employee relationships, food control, selection of equipment, and its arrangement for efficient use. Each student will have opportunity to work on some individual problem.

E 103. **School Lunch Problems.** Credit two hours. Class limited to twenty students. Lectures and discussions, M W F, 2-4. Room G-62. Three field trips and three observation periods in the Home Economics cafeteria or elsewhere will be required in addition to the regular class meetings. Miss ROBERTS.

This course is planned for homemaking teachers who have not had courses in institution management, but who have responsibility for the school lunch. It will deal with problems of interest to the group as a whole, including organization and management procedures, selection of furnishings and equipment, and purchasing of food supplies. Fee, \$1.

Students who are interested in a unit course in quantity cookery may register for H 22 in the School of Hotel Administration, July 24 through August 4.

LEADERSHIP IN HOME ECONOMICS

E 120s. **Leadership in Home Economics: Program Planning and Methods.** (Rural Education 134b: Adult Homemaking Education). Credit three hours. Discussion, M W F, 10-12. Room 124. Miss HENDERSON.

For extension workers, home economics teachers, and others interested in leadership in homemaking education. This course offers opportunity for students to re-evaluate and reconstruct their past experience in home economics, for the purpose of developing increasingly effective programs in homemaking education for a variety of present-day homes and families. Through observing and assisting several extension specialists, agents, and lay leaders, county leaders of home economists, and other teachers of adults, when they are working near Ithaca with individual families and groups, students may (1) broaden and clarify their concept of the directions in which leadership is commonly needed among families; (2) develop some additional skill in finding significant facts about family needs and some further judgment about program and teaching procedures; and (3) determine some principles of learning and program building. Through individual and group discussion and work, students will evaluate methods of leadership and will plan programs to meet needs of specific groups. Students will find it helpful to bring with them information about homes and families in their localities and descriptions of some adult programs there. Observation of field work will be planned for four or more days during the summer session. Estimated expenses for trips, \$10 to \$15. Fee, \$3.

This course may well be supplemented by courses E 104, E 112, E 140 or E 145.

HOTEL ADMINISTRATION

In 1922 Cornell University established, with the cooperation and financial assistance of the American Hotel Association, a four-year course in Hotel Administration for high-school graduates desiring to enter the administrative departments of the hotel business. Many hotel proprietors and managers, who have been unable to take a four-year university course, have asked for shorter courses with less formal entrance requirements.

To meet this demand, all Summer Session work in Hotel Administration is given in unit courses, either one or two weeks in length. A circular giving full details of these courses will be issued about April 1. For this circular or for other information about the work in this department, address Professor H. B. MEEK, Martha Van Rensselaer Hall, Cornell University, Ithaca, N. Y.

The first unit courses in this department begin on June 26. All courses are for undergraduate students.

REQUIREMENTS FOR ADMISSION

Anyone employed in hotel work is eligible for admission. Prospective students will be required to present evidence of good character, of sincerity of purpose, and of interest in hotel work. It is distinctly to the advantage of prospective students to file applications early, in any event not later than June 15.

COURSES OF INSTRUCTION

- *H 11. **Hotel Operation.** Credit one hour.
- *H 15. **Hotel Promotion.** Credit one hour.
- *H 18. **Personnel Methods.** Credit one hour.
- *H 22. **Food Preparation.** Credit two hours.
- *H 24. **Institution Menus.** Credit one hour.
- *H 25. **Hotel Stewarding.** Credit one hour.
- *H 26. **Hotel Menus.** Credit one hour.
- *H 31. **Elementary Accounting.** Credit three hours.
- *H 32. **Hotel Accounting.** Credit three hours.

- *H 33. **Interpretation of Hotel Statements.** Credit one hour.
- *H 36. **Food and Beverage Control.** Credit one hour.
- *H 41. **Hotel Engineering.** Credit two hours.
- *H 71. **Hotel Housekeeping.** Credit one hour.
- *H 81. **Hospital Operation.** Credit two hours.

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Because the edition of this Announcement is limited, persons planning to register in the Summer Session are asked to bring their copies with them.



This path through the gorge of Cascadilla Creek affords a route to downtown Ithaca, a half-mile distant from the campus and four hundred feet below it.



*This campus path leads to the
University swimming pool in
one of the gorges of Fall Creek.*